LRB-3276

2001 DRAFTING REQUEST

Bill

Received: **05/09/2001**

Received By: **kunkemd**

Wanted: **As time permits**

Identical to LRB:

For: **Barbara Gronemus (608) 266-7015**

By/Representing: **Julia Sherman**

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Topic:

Stray voltage remedies

Instructions:

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/1			jfrantze 10/11/2001	_____ _____	lrb_docadmin 10/11/2001		S&L
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-3276

Kunkel, Mark

From: Cross, William
Sent: Thursday, May 03, 2001 9:17 AM
To: Kunkel, Mark
Subject: drafting request

Thanks for getting back to me so quickly. As I said, there are some aspects of this proposal that need fine tuning.
Julia Sherman

NEV draft.doc

DATE: May 2, 2001
TO: Barbara Gronemus
FROM: Julia
RE: Possible draft

This is not the actual bill draft but merely the talking points used to frame my discussion with the drafter.

1) Define the "objectionable" level of negative to earth voltage [NEV] as referenced in NESC, as a "steady state of current for a period of 5 seconds or more".

2) Establish the responsibility of municipally owned, cooperative and investor owned utilities to remedy objectionable levels of NEV.

3) Remedies may include but are not limited to a 5-wire system or 200 negative wire. Any acceptable remedy must meet the standards of _____(?) (Electrical Power Research Institute)

4) To fund remedial efforts the Public Service Commission may approve a $0.01 per kilowatt-hour rate increase on both residential and industrial customers.

5) Proceeds from the rate increase will be held in a segregated fund called _____ administered by the Division of Energy within the Department of Administration.

6) The fund will be used exclusively for the prevention or remediation of objectionable levels of NEV.

6) Funds for remedial or prevention work from the segregated fund will be made by the _____Board .

majority
minority

not to exceed 8 yrs

8) The Board will be have the following appointees for no more than 2 Four-year terms: the CEO or their designees of three IOUs (one each appointed by the Governor, the Speaker of the Assembly and the opposition partisan floor leader of the Senate, two professors or professor emeritus of Electrical engineering from the University of Wisconsin – Madison and another from U.W. Platteville, a physician designated by the State Medical Society of Wisconsin, a representative appointed by the Wisconsin Federation of Cooperatives. and 3 citizen members (One each from municipally owned, cooperative and investor customers owned utilities) appointed by the Governor.

9) The Board is attached to the Division of Energy within the Department of Administration for staffing and administrative purposes.

10) The Board will contract for such engineering assistance, as needed to establish the priority for remediation.

11) The Board shall award funds solely based on the severity of the NEV voltage.

12) Municipally owned, cooperative and investor owned utilities and individuals may petition the Board for remediation activities in their service area. → could be community, neighborhood, etc.

13) If a municipally owned, cooperative and investor owned utility is unable to perform or contract for the performance of needed work; the Board shall appoint a contiguous provider to contract for the work. → utility next door

14) Municipally owned, cooperative and investor owned utilities will be paid for work from the segregated fund upon completion and documentation of remediation work.

Kunkel, Mark

From: Cross, William
Sent: Monday, May 07, 2001 1:28 PM
To: Kunkel, Mark
Subject: Bill Draft

Mark:

Did you get a chance to review the memo I forwarded on stray voltage ? If there are immediate issues in your mind, let me know.
Thanks.

Julia Sherman
6-7016

DATE: May 24, 2001
TO: Mark Kunkel
FROM: Julia Sherman, Office of Representative Barbara Gronemus
RE: Follow-Up on Thursday Meeting

I believe I was able to resolve the outstanding issues.

Purpose: Establish a target date for eliminating "objectionable" levels of NEV and "THD" total harmonic distortion in Wisconsin for 10 years after enactment.

Harmonics: Establish an acceptable level of total harmonic distortion in residential, agricultural and commercial areas at less than 5%, as outlined in IEEE 519 Guidelines. This is already referenced in PSC 113.0704. I have attached the Federal definition of total harmonic distortion for your reference.

PSC Reporting: Require the Public Service Commission to report all variations in power quality discovered under PSC 113.0702 –113.0705 to the Board for inclusion in mitigation plans.

Board Composition: Your point on the academics was well taken. Please change it to one representative from the MSOE faculty and one from the UW system.

Board Rule Making: As we discussed the Board will need rule making authority. Rather than outline technologies, could we state that the rules establishing mitigation procedures be reviewed for effectiveness by the Electrical Power Research Institute and the Institute of electrical and Electronics Engineers (IEEE)?

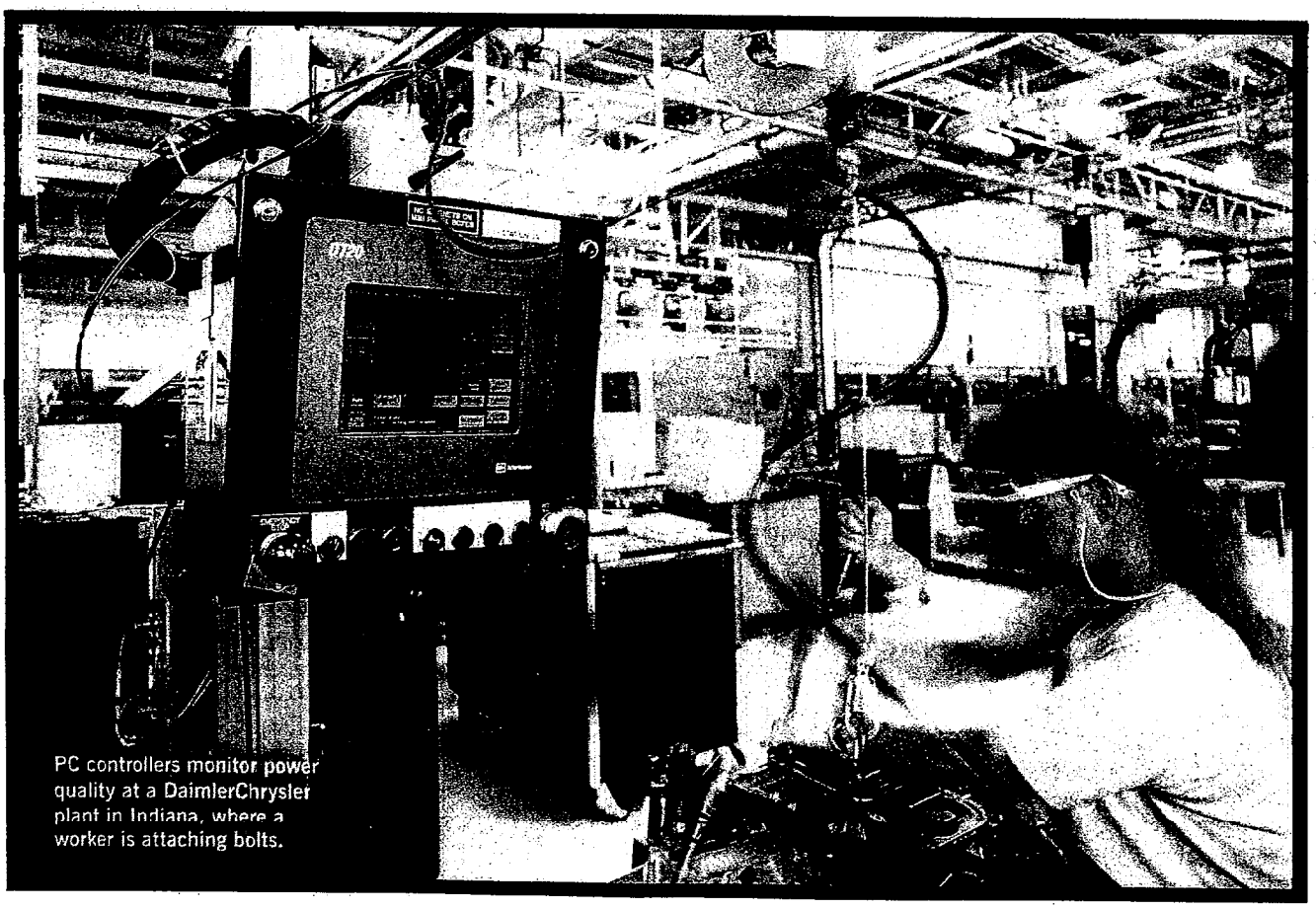
Funding: Let's cut the surcharge back to $0.005 (a fifth of a cent) on each kilowatt-hour of electricity sold in the state.

I have included some material that may be of use to you,
a THD definition, the appropriate sections of the Red Book from the USDA and a great background article from Fortune. I am attempting to scare up IEEE 519 for your reference.

JULY 5, 1999
FORTUNE
INDUSTRIAL MANAGEMENT & TECHNOLOGY

Hot New Technologies for AMERICA'S FACTORIES

They're helping companies cope with bad electric power, check out metal-cutting tools, and set up novel links between machines. BY GENE BYLINSKY



PC controllers monitor power quality at a DaimlerChrysler plant in Indiana, where a worker is attaching bolts.

PHOTOGRAPHS BY BERND AUERS

NEW TOOLS FOR CLEANING DIRTY ELECTRICITY

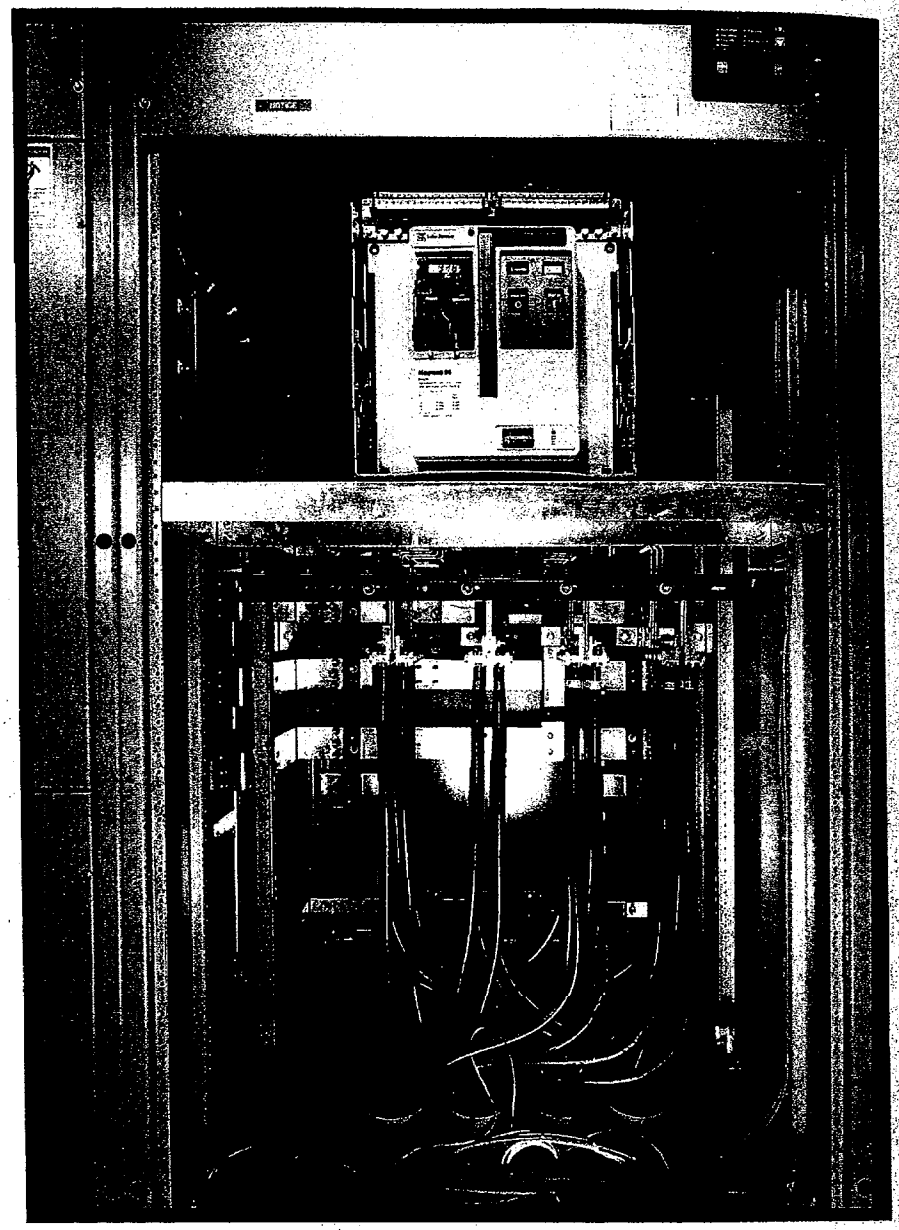
Demand is sizzling for a technology that counters a serious side effect of the Digital Age: the deteriorating quality of electricity. Computers, fax machines, copiers, and many other electronic devices incorporate hardware that converts standard 120-volt alternating current (AC) to direct current (DC) as low as five volts. These conversions, which occur millions of times a

day when offices and homes switch on infotech equipment and factory technicians turn on digitally controlled production machines, present a growing problem.

Each conversion has a slightly jarring effect on electricity's frequency, which in the U.S. is normally 60 cycles per second. The electrical distortions, called harmonics, are a bit like the banging in household pipes when water is turned off too fast. Since AC flows in two directions, constantly reversing itself, the cumulative effect of all the conversions is to dirty up the power in the utility grid. If severe enough, harmonics can wreak havoc on somebody else's factory miles away, causing motors to overheat, and even catch fire, and knocking out electronic circuits in control devices. Even as the digitalization of American industry creates a need to improve power quality, digital devices are undermining it.

Infotech isn't the only offender. Fluorescent lights cause harmonics; so do the variable-speed drives increasingly used by industry to cut the cost of running electric motors. Ironically, such drives aggravate the dirty-power problem in one way while helping to alleviate it in another. Electric motors gulp so much electricity—60% of the electric power produced in the U.S.—that when legions of older, constant-speed models start up, they cause dangerous voltage drops known as sags in parts of the power grid. The ever-increasing ranks of computers and other infotech gear are especially vulnerable to sags as well as to the opposite phenomenon: voltage surges.

To the rescue come techniques—some new, others greatly improved—that enable industrial plants to measure and manage the quality of electricity. The leader in the field is Pittsburgh's Cutler-Hammer, which with $2 billion in annual sales is the biggest group in Eaton Corp. The leading U.S. supplier of electrical power control equipment and services, Cutler also has a new business-support unit called Cutler-Hammer Engineering Services & Systems (CHESS), whose sales exploded to $100 million in its first year. The main activity of its 600 engineers is helping industrial plants cope with power-quality challenges. Cutler-Hammer's leading competitors in power quality are utilities that offer consulting services and companies such as Emerson Electric, Advanced Resources Management in Salt Lake City, and Reliable Power Meters of Los Gatos, Calif.



A new electronic board, at top, runs Cutler-Hammer's mechanical switch gear.

There's plenty of work for all these players. Dirty power costs U.S. industry anywhere from $4 billion to $6 billion a year, according to Karl Stahlkopf, a vice president at the utility-financed Electric Power Research Institute (EPRI) in Palo Alto. Other estimates put the damage as high as $12 billion a year, including $10 million at one Detroit automaker.

Low-quality electricity can affect such surprising corners of industry as the production of pantyhose. Power variations foul up the continuous production process, resulting in pantyhose with runs and other defects. Marek Samotyj, EPRI's manager for power quality, says the quality situation "will get worse before we'll be able to mitigate it." One reason is that EPRI expects 70% of all electricity produced in the U.S. annually to flow through electronic devices by 2002, vs. 30% today.

New power plants can help by boosting the output of clean electricity. But most of the power on the grid will come from existing plants, in an increasingly deregulated environment that could jeopardize quality all by itself. Quality benchmarks don't exist, says Samotyj, and utilities will wonder how to compare their quality with that of new competitors. The power they sell, moreover, will move over transmission lines that, according to EPRI's

Stahlkopf, were mostly "designed in the 1960s, and not for the power quality and levels of reliability needed by modern silicon-based devices."

The soiling of electricity is becoming so bad that utilities, which themselves contribute to harmonics and other forms of dirty power, are threatening to impose fines on users that pollute the grid. Some European countries have begun requiring manufacturers of computers and consumer-electronics products to equip them with harmonics filters before they can be sold. In the U.S., where no such regulations have been proposed, companies with clout are banking on contracts like those guaranteeing high-quality power won from Detroit Edison by American automakers. Some manufacturers are taking matters into their own hands by making their own juice.

Gaining favor lately are small generating systems based on fuel cells and gas-driven microturbines. These are designed to give factories better control of power quality and cost as well as to eliminate traditional worries about power outages on the grid. The only trouble with this solution, says EPRI's Samotyj, is that power on the grid could become more exposed to voltage sags whenever the defectors are forced to turn to the utilities for backup electricity.

Tackling the job of power quality is a natural for Cutler-Hammer, the first company to bring inexpensive microprocessor-based metering and protection devices down to plant-level operation. Side by side with the mechanical switches in the control device shown on the preceding text page is a specialized electronic board that controls them, which Cutler-Hammer makes in a Wisconsin plant.

Many of the electronic devices, smaller and smarter than their nondigital predecessors, are tied into a Cutler-Hammer service called PowerNet, which manages a factory's power costs and troubleshoots quality problems. The company's IQ Analyzer, the size of a cigar box and costing $3,000, provides power-quality information on an easy-to-read display. Waveforms displayed on its screen alert plant technicians to power interruptions and voltage disturbances of less than a second, as well as to harmonics and ultrabrief power surges. Another gadget called the Digitrip OTIM sounds an alarm when it detects harmonics.

WHAT MAKES ELECTRICITY DIRTY

Harmonics, caused by the jarring effect of millions of digital devices switching on.

Voltage sags, resulting from lots of motors starting all at once.

Voltage surges, caused by factory and utility operating equipment.

Engineers in Cutler-Hammer's fast-growing CHESS unit provide consulting, power-system design, power-quality-control training, and turnkey solutions. Last year CHESS even started managing a client's power from afar. At the company's Instant Response Center in Warrendale, Pa., engineers are providing this service on a test basis for a number of industrial clients. With electrical expertise lacking in many plants, says David M. Wathen, the senior vice president who runs Cutler-Hammer, "more and more customers are saying, 'Hey, fix the whole thing for me.' "

Here are ways that technology from Cutler-Hammer and others is dealing with specific dirty-power problems:

• **Suppressing harmonics.** The job starts with analyzing both incoming and outgoing power to determine whether the source of harmonics is within or outside the plant. "We've lowered the cost of detecting harmonics," says Frank Pulaski, applications and systems manager at Cutler-Hammer's powermanagement products center. "The big change in the last year has been embedding harmonics detectors into circuit breakers, switch gear, and other electrical controls."

Another telltale sign of harmonics is deteriorating insulation, which can set equipment on fire. CHESS uses a sophisticated technology pioneered in the Soviet Union and brought to the U.S. by emigrants. They started a company called Integrated Partial Discharge Diagnostics (IPDD) in Minnetonka, Minn., which Cutler-Hammer acquired last year. IPDD offers hardware and software that can spot harmonics-induced deterioration of insulation in transformers, motors, generators, cables, switch gear, and power breakers as early as two months before the equipment fails.

Once harmonics are discovered, they can be handled in various ways. Special transformers supplied by Cutler-Hammer can trap some and dissipate them as heat. Other transformers on circuits shared by multiple machines can "phase shift" harmonics, causing them to cancel each other.

The answer for harmonics from variable-speed motor drives is a new version that suppresses them. Cutler-Hammer now makes such a device. Baldor, a leading maker of motors and drives, doesn't equip its drives with harmonics filters or suppressors but offers corrective devices as add-ons. Cutler also sells low-distortion ballasts for fluorescent lights.

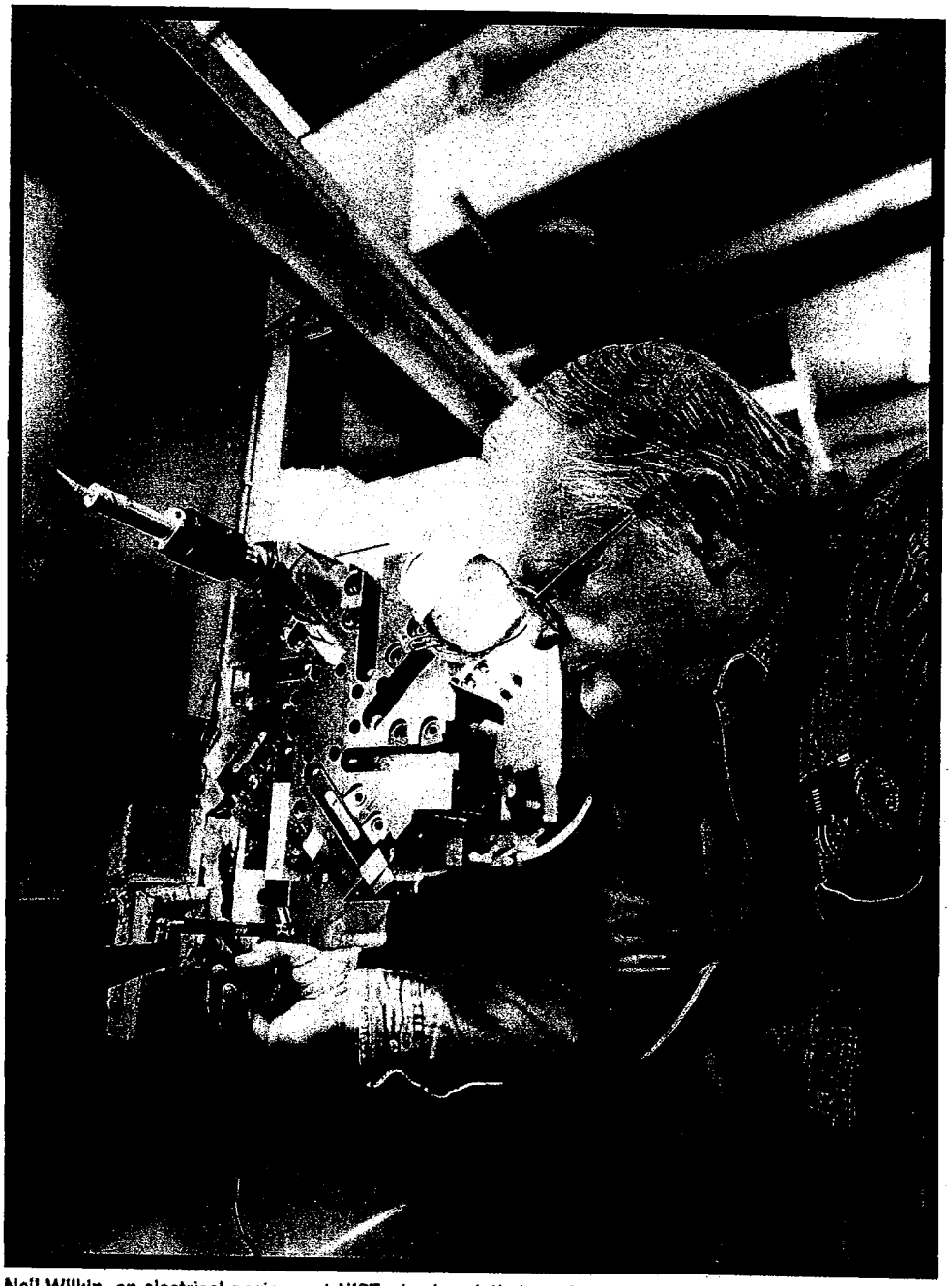
• **Fighting voltage sags.** Power interruptions, a bane since Thomas Edison's day, are no friend to computer systems or other users of electricity. Even more damage can be caused by voltage dips, which happen more often.

A typical sag is a 20% decrease in voltage from normal, lasting from a half-cycle to a few seconds. Even the briefest sags cause computers to lock up or reboot, and corrupt data. Programmable logic controllers (PLCs), computerlike devices that direct many factory machines, also freeze. Motors and drives quit. High-intensity discharge lamps used in factories go dark.

Even the briefest voltage sags cause computers to lock up or reboot. Motors quit, and lamps in factories go dark.

In chipmaking alone, losses from sags amount to $1 million to $4 million per occurrence, according to Central Hudson Gas & Electrical Corp., which supplies power to IBM's chipmaking facilities north of New York City. A Midwestern maker of windows for cars—companies with such experiences are skittish about being named—last year lost $2.5 million of windows after a sag hit a digital control and shut down the production line.

Because of their unpredictable nature, sags are more difficult to control than harmonics. One solution is batteries, generators, or other forms of backup power



Neil Wilkin, an electrical engineer at NIST, checks a lathe's performance.

for the whole plant. A less sweeping answer is an electronically controlled motor starter made by Cutler-Hammer that enables motors to ride out voltage sags. Some variable-speed drives, including Cutler's, also offer such protection.

Manufacturers are urging their equipment suppliers to build machines that can withstand sags. In April, U.S. semiconductor companies proposed a tough standard calling for chipmaking tools to be able to ride out sags as short as one-quarter of an electrical cycle, or 87 milliseconds. As the chipmakers phase in production of dinner-plate-sized wafers holding hundreds of expensive chips, they become more exposed to big losses.

Ideally, each production machine should have a label telling its user how much dirty power it can withstand. No such label exists today, but Cutler-Hammer is offering a sensor that sends an alarm when a motor starts overheating because of voltage sags or for other reasons. It is also extending power-quality monitoring capabilities to individual machines on the factory floor.

At DaimlerChrysler's engine transmission plant in Kokomo, Ind., PC controller screens now show power quality and consumption along with production data. Says Cutler-Hammer's Wathen: "We're includ- ing in machine controls a display that shows power quality, because power quality affects how the system works."

• **Surge protection.** Voltage surges, also called transients, can knock out circuitboards, cause data-transmission errors, scramble computer memories, send hard disks crashing, and stop production processes. Power surges are caused both by production equipment in factories and by utility operating equipment. Utility engineers still rely on massive electromechanical switches—giant versions of household circuit breakers—to turn additional generating equipment on and off. This takes several AC cycles—more than enough time to introduce surges and other instabilities into the grid.

Utilities can also cause big trouble when they switch on capacitors to boost voltage along transmission lines, as managers at a Tennessee metalworking plant learned to their chagrin a year and a half ago. The plant engineers had just installed electronic controls on the plant's biggest furnace. A surge of power from the utility capacitors knocked out the new equipment, resulting in $500,000 of scrap.

The utility wasn't necessarily the culprit; the company's engineers should have checked with their counterparts there. Other remedies exist. Cutler-Hammer and others make surge arrestors and suppressors that protect computers and production equipment. Whether the solution is smart management or a technical fix, the struggle for clean power is going to keep all sorts of parties busy. Says Samotyj of EPRI: "We have to look at electricity as we look at clean water or air."

A Virtual-Reality Test For Machine Tools

In a conference room whose big glass window looks out on a cavernous machine

shop at the federal government's National Institute of Standards and Technology (NIST) in Gaithersburg, Md., where ideas for manufacturing are born and nursed along for use by industry. M. Alkan Donmez speaks into a microphone: "Neil, do you hear me?"

Donmez is a Ph.D. in mechanical engineering and technical leader of one of NIST's teams of idea nursemaids. He's calling Neil Wilkin, an electrical engineer and NIST colleague, who is in a nearby building but could be doing his job anywhere in the world as long as he is linked to the Internet.

"Neil, are you there?" repeats Donmez.

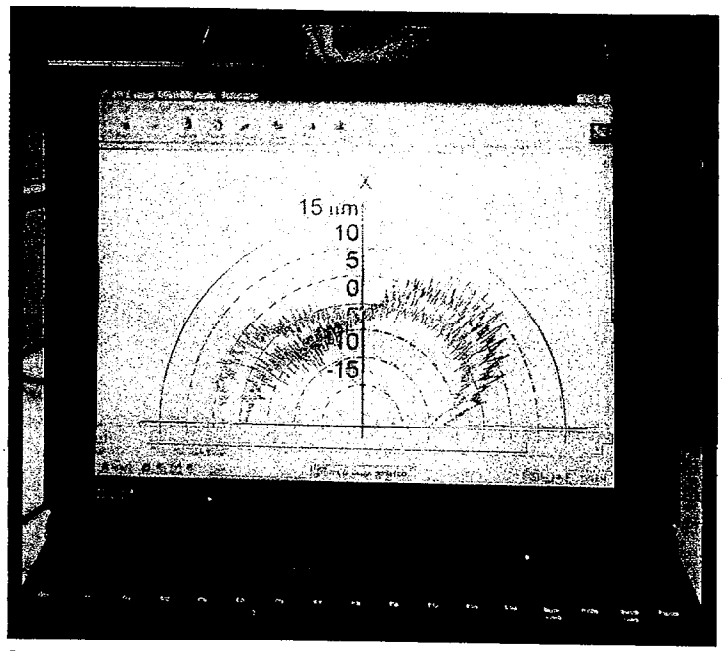
Wilkin responds, "Can you hear me?"

"Yes, we can," replies Donmez.

Wilkin, whose TV image is being transmitted over a high-speed local area network (LAN) onto a big screen in the conference room, then shows what he's doing. He's measuring the ability of a lathe's cutting tool to move in a perfect arc, as it would have to if it was cutting a spherical shape on a rapidly spinning part. Deviations would result in an imperfect part that would be junked. It's all part of a quick "health checkup" on machine tools that NIST is developing for industrial use. The aim is to overcome one of manufacturing's big bottlenecks: How does a designer quickly find a machine tool that can produce a part to exacting specifications?

Performance standards for machine tools, let alone periodic checkups, have been slow in coming. The first standards were introduced in the U.S. only seven years ago and originated not with the toolmakers but with the American Society of Mechanical Engineers. So far the standards apply only to computer numerically controlled (CNC) machining centers.

As production machines age or get damaged accidentally, they drift off their performance standards. Factories today test machine tools only sporadically, and many keep no permanent records. With the emerging NIST system, Donmez says, "Neil Wilkin could be on the shop floor, walking around, and we could be the maintenance department." Thanks to electronic communication, the maintenance department could be at company headquarters thousands of miles away. "If we see a problem with that machine," Donmez says, "we can compare it with historical data that came with the machine originally. And we can tell Neil to try to correct the misalignment by using the machine's controller."

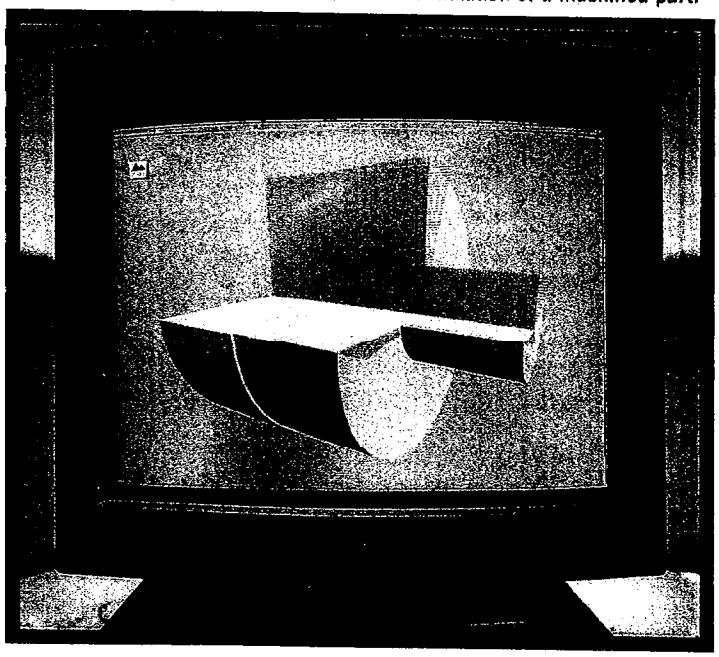


Readings reveal that a lathe's cutting tool traces an imperfect arc.

The circular test, Donmez says, "is very well suited" to determining whether a machine is staying up to snuff. To carry out the test, Wilkin employs a device called the ball bar, invented in the early 1980s. It consists of a telescoping bar with metal spheres at its ends and a sensor in the middle. If there are variations in the radius as the cutting tool turns, the ball bar responds by telescoping or lengthening. A wire connects the ball-bar sensor to a PC, which records 30 positioning coordinates a second. After Wilkin takes about 1,000 measurements, he sends the data to the conference room. On the big screen, Donmez sees columns of numbers.

Now comes the assessment. The problem with this particular machine is that, like a doddering oldster, it can no longer trace a perfect arc but moves along an elliptical path. The distortion, while invisible to the naked eye, is bad enough to turn parts into scrap. Donmez then activates a software module, developed by NIST, that shows a greatly enlarged image of how a part made with the misaligned machine would come out. Whiskerlike red lines show where too much metal was left by the cutting tool. Blue lines indicate where too much metal was cut away.

Defects are highlighted in red and blue in a simulation of a machined part.



Building on this work, NIST is carrying the testing procedure a step further. It has developed a way to examine on computer screens, without wasting metal, the ability of a particular machine to make a "virtual part" that meets a designer's specifications. Simulation software already exists, but it's based on the performance of an ideal machine tool. Even

when a part's design has been perfectly translated into computer-aided manufacturing (CAM) software, it can't always be executed with 100% accuracy by a CNC machine. The result could be, say, a steel mold with barely visible imperfections that have to be painstakingly removed by skilled craftsmen. Some molds are half as big as a desk, and it can take a craftsman—who represents a vanishing breed—as long as three weeks to "clean up" just one. Without their efforts, automobiles, computers, TV sets, and other products would be disfigured by tiny blemishes.

Working with six companies, including Boeing and Caterpillar, NIST is creating report cards for machines.

That's why NIST two years ago began creating virtual machine tools that take account of a real-world machine's idiosyncrasies. Deviations in the machine's "tool path," based on the types of measurements that Neil Wilkin makes, are translated by its virtual counterpart into flaws in a virtual part. Two images appear on a screen: solid and ghost. The ghost image shows the intended contours of the part; the solid image shows what the machine is actually "cutting." Red, again, indicates insufficient cutting, while blue indicates too much. When completed within a year or two, NIST's virtual models will include, in addition to circular data, information on spindle performance, the alignment of machine motion in three axes, and other parameters.

In collaboration with six industrial companies, including Boeing and Caterpillar, the experts at NIST are creating machine tool performance-data repositories—report cards, so to speak, on each machine—that can be accessed quickly via intranets or the Internet. The aim is to replace actual machining and inspection of parts during the prototyping phase with virtual machining and inspection. "Our vision," says Hans Soons, a member of the NIST team, "is to bring this to the desktop, where you would click on the machine data, simulate the machine action, and see the outcome."

Boeing and Caterpillar are starting to put data on the performance of their machines into such repositories, and plan to ask their suppliers to do likewise. Knowing each machine's characteristics, these companies can quickly make several choices. They can make compensatory adjustments in a real-life machine before entrusting it with making a part. Or they can give the job to another machine that performed better on the virtual dry run.

The increasingly global nature of industrial operations makes this kind of information on machine-tool performance vital to the survival of both big companies and the small machine shops that serve them. Boeing's big corporate initiative called Factory Computing Architecture, for example, operates under the slogan "Design anywhere and build anywhere." "Anywhere" means anywhere in the world.

As NIST expands the scope of machine measurements, software companies are arising to exploit its testing approach. Says Don Esterling, the founder and CEO of one such company, Vulcancraft of Silver Spring, Md.: "If you make precision parts, you'd better know what the performance of your production machines is." Vulcancraft has already written prototype software and expects to have a product on the market within a year.

Busting Barriers Between Machines

Forget those Internet chat rooms for manufacturing engineers and factories that order machine parts via e-mail. Here comes the biggest breakthrough for online manufacturing: smart industrial machines and instruments that log on to the Internet and intranet to talk to other machines and even make manufacturing decisions without human help.

The communications medium that opens these possibilities is the new "universal thin server" pioneered by Lantronix, a privately held company in Irvine, Calif. Lantronix's sales of this type of server have tripled in the past year, though the company declines to reveal dollar figures. Dataquest, a computer industry research organization in San Jose, forecasts that sales of all kinds of thin servers will soar from $1.1 billion in 1997 to $16 billion in 2002.

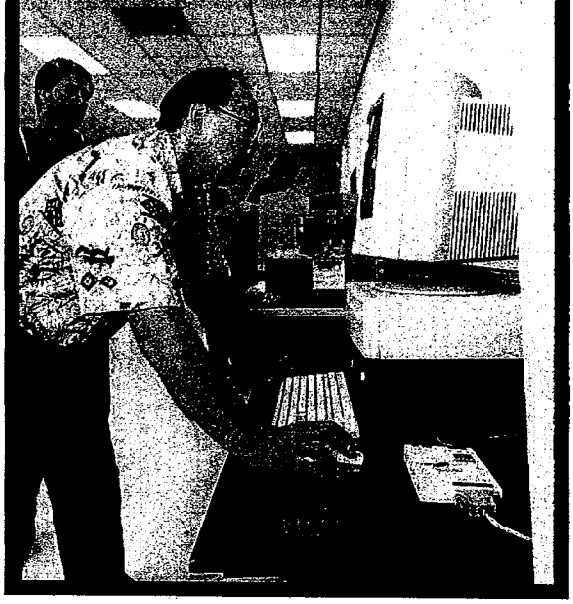
Lantronix's universal thin server is a midget-sized cousin of the widely used "fat" server, which can be a PC or other fully equipped computerized device that has a display screen, keyboard, hard disks, and other appurtenances run by an operating system. Some thin servers are actually quite bulky, yet are called thin because they perform narrowly specialized jobs.

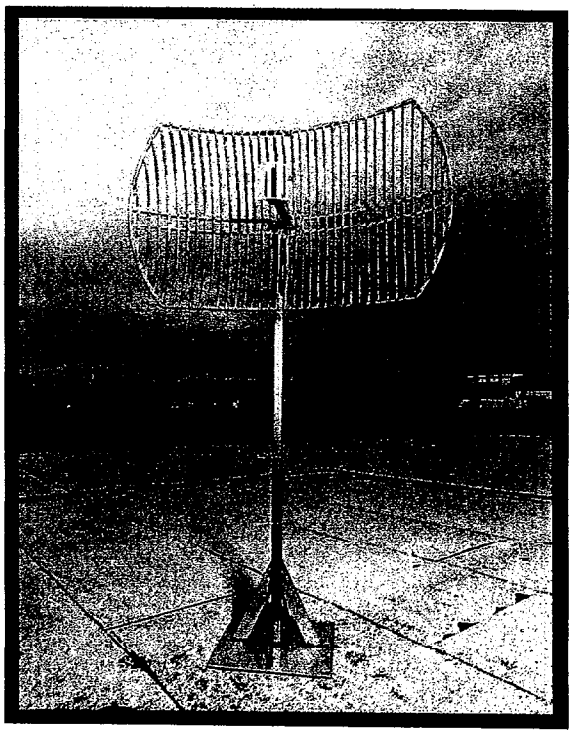
A typical Lantronix thin server has only some memory and a microprocessor, and no keyboard, screen, or hard disk. The microprocessor serves as a translator that enables machines and instruments to talk in a common Ethernet protocol, the principal one used in local area networks. The device is called a "universal" thin server because it can be connected to almost any factory device that runs on software. Like a battery of interpreters at the U.N., it can take any type of data stream, from a simple command file to a complex program, and reformat it into the Ethernet lingua franca.

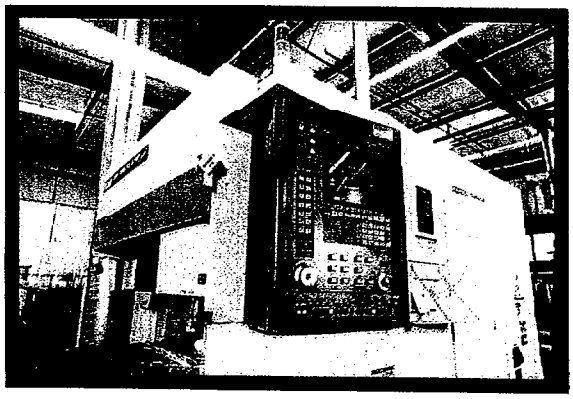
Lantronix isn't the only maker of thin servers. It competes against smaller companies and against big specialized chipmakers such as National Semiconductor. IBM, 3Com, and Baynet make much bigger thin servers used to link telecommunications switches. But according to industry watchers, Lantronix is the leader in small and medium-sized thin servers, including those that allow printers to be shared over an office computer network.

In factory applications, Lantronix has leaped ahead of the pack. More often than not, computer-run machine tools such as lathes and metal-processing, stamping, and assembly machines are not connected to a local network because they can't speak the Ethernet language. Enter Lantronix. On one side of its latest universal thin server is a serial port, an elongated opening for a plug, just like a socket on the back of your PC. "Serial" means that the information from such devices is transmitted in sets of bits and bytes that follow each other like subway trains. These data move about ten times as fast over the Ethernet as they would, say, over a serial cable, a simpler cable constructed of twisted wire pairs.

Most industrial machines come with a serial port that lets technicians plug in diagnostic instruments to check their health or load new programs. All they need is a thin server linking them to an Ethernet cable, and—*voilà!*—they acquire a voice. They can not only report on their health to remote locations but also follow instructions from other machines on the network without human intervention. Discrete manufacturing, the making of individual products from cars to socks, has historically lagged behind continuous-process industries, such as







John Angelastro of California's Stoll Metalcraft linked a new plant to an old one via microwave antennas and new thin servers. One of them, a small white box, is on the side of a computer-controlled laser steel-cutting machine.

petroleum refining and chemical production, in employing such connections. Thin servers promise to close that gap.

Lantronix proved just the answer when Stoll Metalcraft, a precision sheet-metal fabricator in Valencia, Calif., was confronted with the challenge of connecting a new production building with the company's main plant 800 feet away. Stoll wanted to unite two buildings in a single LAN, using Ethernet. That would allow the new building's PCs and bar-code readers, as well as a new computer numerically controlled (CNC) laser cutter that shapes patterns out of sheets of steel, to communicate with machines and controls in the main plant.

When programmer John Angelastro began searching for a reasonably priced solution last year, universal thin servers for industrial applications were so new that he hadn't heard about them. He quickly discarded the idea of running a serial cable between the buildings because of the high cost and distance limitations: Beyond 90 feet, such cables start distorting signals.

Nor were Angelastro and his bosses willing to pay the local telephone company's charges for leased wires. Angelastro recalls: "They wanted me to spend almost $10,000 just to set up the CNC machine, plus pay a monthly fee of $180. And I'd have to pay up to $4,000 every time I needed to add another device to the network. Leased lines require a lot of equipment and setup time too."

Ultimately, Angelastro conducted an Internet search for companies offering serial connections to the Internet, and learned that Lantronix now offered off-the-shelf thin servers that could fill the bill. He bought two to connect the CNC machine and the bar-code reader in the new building to a hub, which was then linked to the LAN in the old building by microwave transmitters. For a one-time outlay of less than $8,000, including $750 for the two servers, Angelastro created a LAN joining the two buildings. The CNC machine and the bar-code reader could now be run with the same system used in the old plant. (See series of photos.) Adds Angelastro: "The system is expandable. I can put any number of new devices on the network for a fraction of the cost of a leased telephone line."

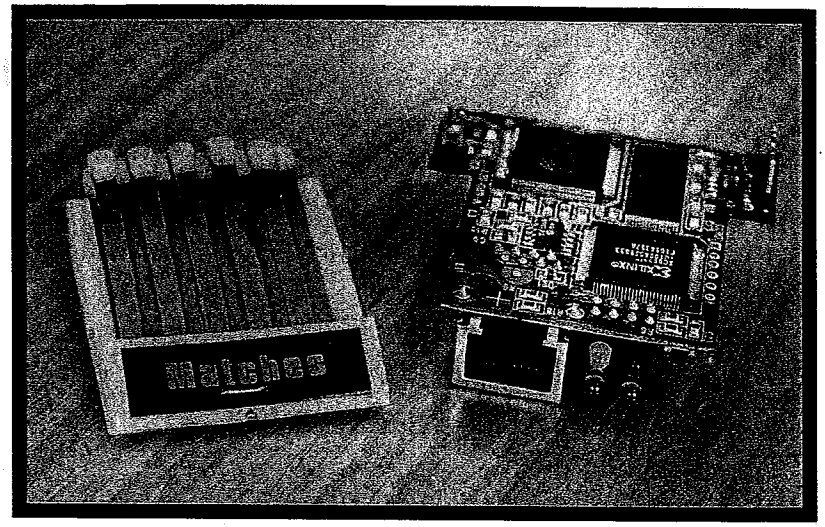
In fact, those machines could be run from another country via the Internet, using a router connection that Lantronix sells. That's exactly what DaimlerChrysler engineers are already doing experimentally, transmitting software updates from Stuttgart, Germany, to CNC machines at a plant in Nottingham, England. The current procedure entails shipping tapes or written instructions to be installed or executed by local programmers. Telephone-switch maker Nortel already uses Lantronix thin servers to update switching devices in the field, and Schneider Electric of North Andover, Mass., uses them to link its programmable logic controllers (PLCs), computerlike devices that run machines, to the Internet.

Advanced thin servers, which Lantronix is now putting on the market, are sophisticated enough to participate in manufacturing decisions. Quinx AG of Zetzwil, Switzerland, a seller of network-based direct numerical control software, uses the new servers on its CNC machines. The thin servers can ask a bigger server to send along a new program, which they then download into the CNC machines. "We're now a bit smarter and go beyond just providing a communications protocol translation function," says Lantronix CEO Fred Thiel. "We actually provide a bit of interaction between machines."

By way of example, Thiel says, "You can now have a thin server talking to another thin server, saying, 'You know, I've discovered an error this CNC machine is making.' Or, 'This CNC machine is out of parts, and I need to move this job somewhere else.' We can instruct a thin server, if that event occurs, to do so." In effect, Thiel says, the thin server takes on the role of a PLC at a much lower cost. Adds Thiel: "The ability of machines to talk is one thing. But the ability of ma-

chines to think is more important."

Because of this ability, machines bossed by big computers can be entrusted with running detailed manufacturing steps on their own. Thin servers already come as small as matchboxes, and Thiel predicts that they will soon be the size of postage stamps. By then, it will be possible to put them right on sensors, valves, and other instruments and devices, bringing some decision-making down to the lowest possible level.



Lantronix's thin servers, some the size of matchbooks, are shrinking.

Thiel says, "There's no reason for all information to travel up to central processors and then all the way down." Instead, he explains, universal thin servers will make possible independent feedback loops that resemble loops in living organisms, such as the neurons and eyes that tell a cat just how far to strike with a paw to catch a mouse.

What this means to factory engineers is that they can build finely tuned controls into the manufacturing process itself. A potato-chip maker, for instance, can equip a potato-cutting knife with a thickness-measuring thin server, while a salinity sensor can monitor the amount of salt being applied to the potato chip and tell the salt shaker to speed up or slow down. Companies that make the other kind of chips—semiconductors—already use universal thin servers to control and balance environmental conditions inside their fabs.

As thin servers get smarter, they may displace PCs in factory applications where such machines would be expensive overkill. It's extravagant, for example, to use a PC to control a single production tool. International Data Corp., a research firm in Framingham, Mass., predicts that thin servers will supplant PCs as gateways to the Internet. In another unexpected twist, thin servers are beginning to breathe new electronic life into PLCs, rather rigid devices whose demise has been widely predicted. PLC manufacturers are starting to incorporate thin servers in models that can work online and through the Internet.

Universal thin servers hold the promise of making manufacturers more competitive in a variety of ways. Before long, for example, a smaller staff may be able to keep tabs on production machines via pager alarms or e-mail messages without having constantly to man a centralized control room. Eventually, thin servers may serve as the nerve nodes in truly automated factories, in which intelligent machines will communicate with other machines and make most of the production decisions. When language barriers between machines disappear, all sorts of interesting things can happen. F

total harmonic distortion (THD)

total harmonic distortion (THD): Of a signal, the ratio of (a) the sum of the powers of all harmonic frequencies above the fundamental frequency to (b) the power of the fundamental frequency. *Note 1:* The THD is usually expressed in dB. *Note 2:* Measurements for calculating the THD are made at the output of a device under specified conditions. (188)

This HTML version of FS-1037C was last generated on Fri Aug 23 00:22:38 MDT 1996

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State of Wisconsin
2001 – 2002 LEGISLATURE

LRB–3276/P1
MDK:...

D. NOTE

tmg

PRELIMINARY DRAFT – NOT READY FOR INTRODUCTION

By WED 9/5 pm

Gen. Cat.

AN ACT ...; **relating to:** creating an electric remediation board, establishing an electric remediation fund, requiring electric utilities and cooperative associations to remedy certain voltage problems, imposing a surcharge on electric bills, granting rule–making authority ~~and making an appropriation~~.

Analysis by the Legislative Reference Bureau

This is a preliminary draft. An analysis will be prepared for a subsequent version.

For further information see the ***state and local*** fiscal estimate, which will be printed as an appendix to this bill.

The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:

SECTION 1. 15.07 (1) (d) of the statutes is created to read:

15.07 **(1)** (d) Except as provided in s. 15.105 (27) (a) 1. to 3., no member of the electric remediation board may be an officer, director, or employee of an electric public utility or a cooperative association organized under ch. 185 for the purpose of providing electricity to its members only.

SECTION 2. 15.105 (27) of the statutes is created to read:

15.105 **(27)** ELECTRIC REMEDIATION BOARD. (a) There is created an electric remediation board that is attached to the department of administration under s. 15.03. The board shall consist of the following members appointed for 4–year terms:

1. One chief executive officer of an investor–owned electric public utility, or his or her designee, appointed by the speaker of the assembly.

2. One chief executive officer of an investor–owned electric public utility, or his or designee, appointed by the senate leader of the party other than the party of the speaker of the assembly.

3. One chief executive officer of an investor–owned electric public utility, or his or her designee.

4. One professor or professor emeritus of electrical engineering of the University of Wisconsin System.

5. One professor or professor emeritus of electrical engineering of the Milwaukee School of Engineering.

6. One physician recommended by the Wisconsin State Medical Society.

7. One customer of an investor–owned electric public utility.

8. One customer of a municipally owned electric public utility.

9. One member of a cooperative association organized under ch. 185 for the purpose of providing electricity to its members only.

(b) The member specified in par. (a) 3. shall be appointed by the governor without senate confirmation and the members specified in par. (a) 4. to 9. shall be appointed by the governor with senate confirmation.

(c) No member of the electric remediation board may serve more than 2 terms.

SECTION 3. 16.956 of the statutes is created to read:

16.956 Electric remediation program. (1) DEFINITIONS. In this section:

(a) "Board" means the electric remediation board.

(b) "Electric cooperative" means a cooperative association organized under ch. 185 for the purpose of providing electric service to its members only.

(c) "Electric utility" means a public utility, as defined in s. 196.01 (5), that produces electricity.

(d) "Fund" means the electric remediation fund under s. 25.98.

(e) "Objectionable level of neutral–to–earth voltage" means neutral–to–earth voltage in a steady state of current for 5 seconds or more.

(f) "Objectionable level of total harmonic distortion voltage" means total harmonic distortion voltage of 5% or more.

(2) DUTY TO REMEDY. (a) No later than January 1, 2012, each electric utility and cooperative shall remedy any problems associated with its plant or equipment that result in an objectionable level of total harmonic distortion voltage or neutral–to–earth voltage at the premises of a customer or member. For purposes of this paragraph, there is a rebuttable presumption that an objectionable level of total harmonic distortion voltage or neutral–to–earth voltage at a customer's or member's premises is the result of problems associated with the electric utility's or cooperative's plant or equipment, not the customer's or member's plant or equipment.

(b) The board shall promulgate rules establishing the standards applicable to remedies under par. (a). In promulgating the rules, the board shall consider the standards of the Electric Power Research Institute and the Institute of Electrical and Electronics Engineers, Inc.

(3) AWARDS FROM FUND. (a) The board shall promulgate rules establishing requirements and procedures for the board to make awards from the fund to reimburse electric utilities and cooperatives for remedies under sub. (2). The rules shall include a priority system for making awards based on the severity of the objectionable level of total harmonic distortion voltage or neutral–to–earth voltage. The board may not make an award unless each of the following is satisfied:

1. The remedy is performed by the electric utility or cooperative that provides retail service to the customer or member at whose premises there is an objectionable level of total harmonic distortion voltage or neutral–to–earth voltage or, if the board is satisfied that the electric utility or cooperative is unable to perform the remedy, by the electric utility or cooperative that provides retail service in a service area that is contiguous to the customer's or member's service area.

2. The electric utility or cooperative that performs the remedy documents to the satisfaction of the board that remedial activities for a particular customer or member have been completed.

(b) The board may contract for assistance in making awards under par. (a), including engineering assistance necessary to prioritize awards.

(4) SURCHARGES. No later than the first day of the 6th month beginning after the effective date of this subsection .... [revisor inserts date], each electric utility and cooperative shall assess a surcharge of $ 0.005 per kilowatt hour on customer and member electric bills and pay the surcharge to the board. The surcharges that are collected by an electric utility or cooperative shall be considered trust funds of the board and not income of the electric utility or cooperative.

(5) PUBLIC SERVICE COMMISSION REPORTS. The public service commission shall submit monthly reports to the board describing violations of the commission's rules

regarding voltage bandwidth and voltage distortion. The board shall consider the violations described in the reports in prioritizing awards under sub. (3).

SECTION 4. 20.005 (3) (schedule) of the statutes: at the appropriate place, insert the following amounts for the purposes indicated:

			2001–02	2002–03
20.505 Administration, department of				
(4) Attached divisions, boards, councils and commissions				
(s) Electric remediation awards	SEG	A	–0–	–0–

SECTION 5. 20.505 (4) (h) of the statutes, as affected by 2001 Wisconsin Act 16, is amended to read:

20.505 **(4)** (h) *Program services.* The amounts in the schedule to carry out the responsibilities of divisions, commissions, and boards attached to the department of administration, other than the board on aging and long–term care, the adolescent pregnancy prevention and pregnancy services board, and the public records board, and to carry out the responsibilities of special and executive committees. All moneys received from fees which are authorized by law or administrative rule to be collected by any division, board, or commission attached to the department, other than the board on aging and long–term care, the adolescent pregnancy prevention and pregnancy services board, the electric remediation board, and the public records board, and all moneys received from fees that are authorized by law or executive order to be collected by any special or executive committee shall be credited to this appropriation account and used to carry out the purposes for which collected.

History: 1971 c. 108, 125, 215; 1971 c. 270 s. 104; 1973 c. 90 and supp., 157, 305; 1975 c. 39 ss. 179 to 184f, 735 (5); 1975 Ex. Order No. 24; 1975 c. 224, 397; 1977 c. 29; 1977 c. 196 ss. 70, 131; 1977 c. 377 s. 30; 1977 c. 418 s. 929 (1), (55); 1979 c. 32 s. 92 (5); 1979 c. 34, 175, 221; 1979 c. 355 s. 241; 1979 c. 361; 1981 c. 20 ss. 400b to 421, 2202 (57) (b); 1981 c. 44 s. 3; 1981 c. 62, 121; 1981 c. 202 s. 23; 1981 c. 314, 374, 391; 1983 a. 27 ss. 439 to 456, 2202 (1); 1983 a. 36, 187, 282, 371, 393; 1985 a. 29, 31, 57, 120, 296, 297, 332; 1987 a. 27 ss. 296n, 296q, 297b, 297d, 299a to 299r, 300a, 301a, 418 to 432; 1987 a. 142, 147, 342, 399; 1989 a. 31, 56, 107, 122, 336, 339, 345, 366; 1991

a. 39 s. 469, 593q to 614; 1991 a. 105, 269, 315; 1993 a. 16 ss. 470g, 470m, 470r, 488 to 506m; 1993 a. 33, 75, 193, 349, 358, 374, 414, 437, 477, 491; 1995 a. 27, 56, 201, 216, 225, 227, 370, 403; 1997 a. 3; 1997 a. 27 ss. 199, 227 to 229m, 233, 666g to 692; 1997 a. 237, 283; 1999 a. 5, 9, 24, 52, 105, 113, 148, 185.

SECTION 6. 20.505 (4) (s) of the statutes is created to read:

20.505 **(4)** (s) *Electric remediation awards.* From the electric remediation fund, the amounts in the schedule for awards by the electric remediation board under s. 16.956 (3).

SECTION 7. 25.17 (1) (dm) of the statutes is created to read:

25.17 **(1)** (dm) Electric remediation fund (s. 25.98);

SECTION 8. 25.98 of the statutes is created to read:

25.98 Electric remediation fund. There is established a separate nonlapsible trust fund designated as the electric remediation fund, consisting of surcharges collected by electric utilities and cooperative associations and paid to the electric remediation board under s. 16.956 (4).

SECTION 9. Nonstatutory provisions.

(1) INITIAL APPOINTMENTS TO ELECTRIC REMEDIATION BOARD. Notwithstanding section 15.105 (27) (a) (intro.) of the statutes, as created by this act, the following initial members of the electric remediation board shall be appointed by the first day of the 3rd month beginning after the effective date of this subsection for the following terms:

(a) The members specified in section 15.105 (27) (a) 1., 4., and 7. of the statutes, as created by this act, for terms expiring on May 1, 2005.

(b) The members specified in section 15.105 (27) (a) 2., 5., and 8. of the statutes, as created by this act, for terms expiring on May 1, 2006.

(c) The members specified in section 15.105 (27) (a) 3., 6., and 9. of the statutes, as created by this act, for terms expiring on May 1, 2007.

(END)

DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU

LRB–3276/P1dn
MDK:...
KMG

Senator Gronemus:

Please review this preliminary draft carefully to make sure that it achieves your intent. In particular, please note the following:

1. I understand that you want a 10–year deadline on remedying voltage problems. Therefore, the draft requires remedies no later than January 1, 2012. Is that okay? Or should remedies be required within a certain amount of time after a problem is discovered? Also, you may want to consider how to address problems that are discovered after the 10–year deadline.

2. On a point related to the above, what should happen to an electric utility or cooperative that fails to carry out its duty to remediate? Do you want to create a penalty?

3. I called the board the "electric remediation board". Is that name okay? Also, the instructions requested attaching the board to DOA's division of energy. However, that division is not created in the statutes, but is created by DOA. Because it is possible that DOA could rescind the division, I didn't mention it in the draft. Also, it's not necessary to be specific about which division the board is attached to, as long as the draft provides for attachment to DOA. In addition, please review who the members of the board are and how they are appointed, such as whether or not senate confirmation is required for the governor's appointments. Are these provisions okay?

4. The draft requires the board to consider IEEE's and EPRI's standards in promulgating rules, instead of requiring the board to adopt those standards. This approach gives the board more flexibility. Also, it avoids the issue of a potential improper delegation of legislative authority to a private organization.

5. On a point related to the above, should the draft refer to both IEEE and EPRI, or just one of those organizations?

6. I'm not sure whether it is necessary to define "neutral–to–earth voltage" or "total harmonic distortion voltage". Definitions might not be necessary because the board must consider IEEE's and EPRI's standards. Therefore, the board will, to some extent, be bound by IEEE's and EPRI's understanding of these terms. However, if these terms have definitions that aren't settled or are controversial, you may want to revise the

draft to provide definitions. Also, please review the draft's reference to "objectionable levels". Are they okay?

7. The instructions provide for allowing customers and community groups to petition the board for funding. However, I'm not exactly sure about your intent and didn't include such a provision. Perhaps I don't understand your intent, but I've assumed that electric utilities and cooperatives will apply for awards, not their customers or members. Please contact me if I've misunderstood your intent.

8. The draft allows a contiguous electric utility or cooperative to perform a remedy only if a customer's or member's electric utility or cooperative is unable to perform the remedy. I'm not sure how or why an electric utility or cooperative would be unable to perform a remedy. The draft doesn't provide any details on this point. Do you want to make this requirement more specific?

9. The appropriation for the awards is a sum certain from the fund that is created. I wasn't sure what amounts should be specified for fiscal years 2001–02 and 2002–03. Please contact me if you know how much should be appropriated. Alternatively, you could revise the appropriation so that it is a sum sufficient from the fund. However, under that alternative, the board could pay out the entire amount of the fund in any fiscal year.

Mark D. Kunkel
Legislative Attorney
Phone: (608) 266–0131
E–mail: mark.kunkel@legis.state.wi.us

DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU

LRB–3276/P1dn
MDK:kmg:kjf

September 5, 2001

Senator Gronemus:

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Mark D. Kunkel
Legislative Attorney
Phone: (608) 266–0131
E–mail: mark.kunkel@legis.state.wi.us

Marilyn Wilson 231-2277

DATE: September 10, 2001
TO: Mark Kunkel
FROM::
RE: **Redraft LRB 3276/P1dn**

OK Bill Cross Rep Grothman

In response to the questions raised in your letter:

1. Adjust the draft to allow for remediation for 10 years after discovery of the electrical problem

2. Utilities that fail to comply will be subject to tort action with treble damages

3. The Board and program should be names the Electrical Pollution Super Fund

4. Require the board to consider the IEEE standards, EPRI recommendations (important distinctions) and CBEMA standards in the development of standards.

5. Answered above.

~~Computer Bus Equip Mfgrs Assn~~ now the ITIC

6. Delete all references to "total harmonic distortion voltage" within the draft. Modify the NEV definition as it appears on page 3 line 10 to read "Objectionable flow of current" means a steady state of current for five seconds or more.

7. Individuals or organizations may apply to the board for funding as a non-judicial remedy if their power company refuses to address the issue. Simply put, power providers cannot be the sole gatekeepers to the funding. Other options that accomplish this goal are acceptable.

8. Delete the material questioned in #8. Upon further thought it is unnecessary.

Ask Julia Sherman

9. Because the program has a steady stream of funding, the Chapter 20 schedule should reflect about 85-90% of the expected annual receipts for grants and administration. allow to apply for start up

In other changes:

1. Replace one of the CEO's on page 3 with the Attorney General or his/her designee.
2. On Page 3, line 22 add language that states the representative of the cooperatives is designated by the Federation of Cooperatives.
3. Page 3, line 3 delete references to bandwidth and voltage distortion

Computer Business Equipment

Cross, William

From: Nelson, Paul *PSC
Sent: Thursday, September 06, 2001 3:48 PM
To: Cross, William
Subject: Electriciity sales

Here are figures for 1960 in millions of kilowatthours:

Private utilities:	10,877
Municipal:	1,121
Co-ops:	509
TOTAL	12,507

DOA/Division of Energy tells me they have the figures for 2000 broken down by private/municipal/co-ops and they said they were faxing them today (I haven't seen them yet).

Cross, William

From: Nelson, Paul *PSC
Sent: Tuesday, September 11, 2001 2:36 PM
To: Cross, William
Subject: 1992 electricity sales data

In millions of kilowatthours:

Investor-owned:	43,018
Municipal:	5,493
Co-ops:	2,398
TOTAL:	50,909

Paul M. Nelson
Legislative Liaison
Public Service Commission of Wisconsin
POSTAL: P.O. Box 7854
Madison, WI 53707-7854
COURIER: 610 N. Whitney Way
Madison, WI 53705
ph: 608-266-1383
FAX: 608-266-1401
e-mail: nelsop@psc.state.wi.us

Cross, William

From: Nelson, Paul *PSC
Sent: Wednesday, September 05, 2001 12:37 PM
To: Cross, William
Subject: Historic electricity sales

Bill: Rep. Gronemus has requested data on electricity sales for the years 1954, 1982, and 2000.

I have the figures for 1982 and 2000. The 1982 figures are further broken down by sales by private utilities, municipal utilities, and electric cooperatives.

The 2000 figures are from the U.S. Department of Energy, Energy Information/Electric Power Monthly. This agency only reports the total sales, and no breakdown is available for Wisconsin private/municipal utilities and electric co-ops.

The 1954 figures are proving harder to come by. The Commission does not have these figures compiled in our reference center. If Rep. Gronemus is still interested in the 1954 data, I will have our reference center librarian request this information from the University.

Here are the figures for 1982 and 2000, in millions of kilowatthours:

1982:

Private utilities:	32,332
Municipal utilities:	3,652
Co-ops	1,965
TOTAL	37,949

2000:

TOTAL	64,774

Let me know if you'd like to see the 1954 data reported -- and, just out of curiosity, why the choice of these particular years?

Paul M. Nelson
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Public Service Commission of Wisconsin
POSTAL: P.O. Box 7854
Madison, WI 53707-7854
COURIER: 610 N. Whitney Way
Madison, WI 53705
ph: 608-266-1383
FAX: 608-266-1401
e-mail: nelsop@psc.state.wi.us

Kunkel, Mark

Modified: Thu 10/11/2001 8:24 AM

Electric pollution draft contacts:

Marilyn Wilson
home: 231-2277

Julia Sherman (former aide to Rep. Gronemus)
work: 312/464-5514
home: 312/583-1757
mobile: 312/590-9587

Dr. Martin Graham (sp?)
home: 510/841-7044
work: 510/642-4513

Dave Stetsen (sp?)
home: 715/662-5019
work: 608/989-2571

Jim Mapp (DOA)
work: 266-8020

State of Wisconsin
2001 – 2002 LEGISLATURE

LRB-3276/P1 (1)
MDK:kmg:kjf

& CS

PRELIMINARY DRAFT – NOT READY FOR INTRODUCTION

today (Thursday 10/11) by 10:30 am, if possible

D-NOTE

current flow

AN ACT *to amend* 20.505 (4) (h); and *to create* 15.07 (1) (d), 15.105 (27), 16.956, 20.505 (4) (s), 25.17 (1) (dm) and 25.98 of the statutes; **relating to:** creating an electric ~~remediation~~ pollution board, establishing an electric ~~remediation~~ pollution fund, requiring electric utilities and cooperative associations to remedy certain ~~voltage~~ voltage problems, imposing a surcharge on electric bills, ~~and~~ granting rule-making authority. and making an appropriation

INSERT A

Analysis by the Legislative Reference Bureau

This is a preliminary draft. An analysis will be prepared for a subsequent version.

For further information see the ***state and local*** fiscal estimate, which will be printed as an appendix to this bill.

The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:

SECTION 1. 15.07 (1) (d) of the statutes is created to read: and 2.

15.07 **(1)** (d) Except as provided in s. 15.105 (27) (a) 1. ~~to~~, no member of the electric ~~remediation~~ pollution board may be an officer, director, or employee of an electric

public utility or a cooperative association organized under ch. 185 for the purpose of providing electricity to its members only.

SECTION 2. 15.105 (27) of the statutes is created to read:

15.105 **(27)** ELECTRIC ~~REMEDIATION~~ POLLUTION BOARD. (a) There is created an electric ~~remediation~~ pollution board that is attached to the department of administration under s. 15.03. The board shall consist of the following members appointed for 4–year terms:

1. One chief executive officer of an investor–owned electric public utility, or his or her designee, appointed by the speaker of the assembly.

2. One chief executive officer of an investor–owned electric public utility, or his or her designee, appointed by the senate leader of the party other than the party of the speaker of the assembly.

~~3. One chief executive officer of an investor–owned electric public utility, or his or her designee.~~

3 4. One professor or professor emeritus of electrical engineering of the University of Wisconsin System.

4 5. One professor or professor emeritus of electrical engineering of the Milwaukee School of Engineering.

5 6. One physician recommended by the Wisconsin State Medical Society.

6 7. One customer of an investor–owned electric public utility.

7 8. One customer of a municipally owned electric public utility.

8 9. One member of a cooperative association organized under ch. 185 for the purpose of providing electricity to its members only.

(b) The ~~member specified in par. (a) 3. shall be appointed by the governor without senate confirmation and the~~ members specified in par. (a) ~~1.~~ 3. to ~~8.~~ 8. shall be appointed by the governor with senate confirmation.

(c) No member of the electric ~~remediation~~ pollution board may serve more than 2 terms.

SECTION 3. 16.956 of the statutes is created to read:

16.956 Electric ~~remediation~~ pollution program. (1) DEFINITIONS. In this section:

(a) "Board" means the electric ~~remediation~~ pollution board.

(b) "Electric cooperative" means a cooperative association organized under ch. 185 for the purpose of providing electric service to its members only.

(c) "Electric utility" means a public utility, as defined in s. 196.01 (5), that produces electricity.

(d) "Fund" means the electric ~~remediation~~ pollution fund under s. 25.98.

(e) "Objectionable ~~level of neutral-to-earth voltage~~ flow of current" means ~~neutral-to-earth voltage~~ a steady state of current for 5 seconds or more.

~~(f) "Objectionable level of total harmonic distortion voltage" means total harmonic distortion voltage of 5% or more.~~

(2) DUTY TO REMEDY. (a) ~~No later than January 1, 2018,~~ An electric utility ~~and~~ or cooperative shall remedy any problems associated with its plant or equipment that result in an objectionable ~~level of total harmonic distortion voltage or neutral-to-earth voltage~~ flow of current at the premises of a customer or member. For purposes of this paragraph, there is a rebuttable presumption that an objectionable ~~level of total harmonic distortion voltage or neutral-to-earth voltage~~ flow of current at a customer's or member's premises is the result of problems associated with the electric utility's or cooperative's plant or equipment, not the customer's or member's plant or equipment.

(b) The board shall promulgate rules establishing the standards applicable to remedies under par. (a). In promulgating the rules, the board shall consider the

no later than 10 years after discovery of the objectionable flow of current

recommendations INSERT 4-2 the Standards of the

~~standards~~ of the Electric Power Research Institute and the Institute of Electrical and Electronics Engineers, Inc. and Information Technology Industry Council

(3) AWARDS FROM FUND. (a) The board shall promulgate rules establishing requirements and procedures for the board to make awards from the fund to reimburse electric utilities and cooperatives for remedies under sub. (2)(a). INSERT 4-5 The rules shall include a priority system for making awards based on the severity of the objectionable ~~level of total harmonic distortion voltage or neutral–to–earth voltage~~ flow of current. The board may not make an award unless all of the following are satisfied:

1. The remedy is performed by the electric utility or cooperative that provides retail service to the customer or member at whose premises there is an objectionable ~~level of total harmonic distortion voltage or neutral–to–earth voltage~~ flow of current or, if the board is satisfied that that electric utility or cooperative is unable to perform the remedy, has refused or by ~~the electric utility or cooperative that provides retail service in a service area that is contiguous to the customer's or member's service area.~~ another competent person

2. The electric utility or cooperative that performs the remedy or other person documents to the satisfaction of the board that remedial activities for a particular ~~customer or member~~ or group of customers or members have been completed.

(b) The board may contract for assistance in making awards under par. (a), including engineering assistance necessary to prioritize awards.

(4) SURCHARGES. No later than the first day of the 6th month beginning after the effective date of this subsection .... [revisor inserts date], each electric utility and cooperative shall assess a surcharge of 0.005 cent per kilowatt hour on customer and member electric bills and pay the surcharge to the board. The surcharges that are collected by an electric utility or cooperative shall be considered trust funds of the board and not income of the electric utility or cooperative.

(5) STAFF. The department shall provide staff services to the board.

(5) PUBLIC SERVICE COMMISSION REPORTS. The public service commission shall submit monthly reports to the board describing violations of the commission's rules regarding voltage bandwidth and voltage distortion. The board shall consider the violations described in the reports in prioritizing awards under sub. (3).

SECTION 4. 20.005 (3) (schedule) of the statutes: at the appropriate place, insert the following amounts for the purposes indicated:

		2001–02	2002–03
20.505 Administration, department of			
(4) ATTACHED DIVISIONS, BOARDS, COUNCILS AND COMMISSIONS			
(s) Electric ~~remediation~~ pollution awards	SEG	A	–0– ~~–0–~~ $2,752,900

SECTION 5. 20.505 (4) (h) of the statutes, as affected by 2001 Wisconsin Act 16, is amended to read:

20.505 **(4)** (h) *Program services.* The amounts in the schedule to carry out the responsibilities of divisions, commissions, and boards attached to the department of administration, other than the board on aging and long–term care, the adolescent pregnancy prevention and pregnancy services board, and the public records board, and to carry out the responsibilities of special and executive committees. All moneys received from fees which are authorized by law or administrative rule to be collected by any division, board, or commission attached to the department, other than the board on aging and long–term care, the adolescent pregnancy prevention and pregnancy services board, the electric ~~remediation~~ pollution board, and the public records board, and all moneys received from fees that are authorized by law or executive

order to be collected by any special or executive committee shall be credited to this appropriation account and used to carry out the purposes for which collected.

SECTION 6. 20.505 (4) (s) of the statutes is created to read:

20.505 **(4)** (s) *Electric remediation awards.* From the electric ~~remediation~~ fund, the amounts in the schedule for awards by the electric ~~remediation~~ board under s. 16.956 (3).

SECTION 7. 25.17 (1) (dm) of the statutes is created to read:

25.17 **(1)** (dm) Electric ~~remediation~~ fund (s. 25.98);

SECTION 8. 25.98 of the statutes is created to read:

25.98 Electric ~~remediation~~ fund. There is established a separate nonlapsible trust fund designated as the electric ~~remediation~~ fund, consisting of surcharges collected by electric utilities and cooperative associations and paid to the electric ~~remediation~~ board under s. 16.956 (4).

SECTION 9. Nonstatutory provisions.

(1) INITIAL APPOINTMENTS TO ELECTRIC ~~REMEDIATION~~ BOARD. Notwithstanding section 15.105 (27) (a) (intro.) of the statutes, as created by this act, the following initial members of the electric ~~remediation~~ board shall be appointed by the first day of the 3rd month beginning after the effective date of this subsection for the following terms:

(a) The members specified in section 15.105 (27) (a) 1., ~~to~~, and ~~to~~ of the statutes, as created by this act, for terms expiring on May 1, 2005.

(b) The members specified in section 15.105 (27) (a) 2., ~~to~~, and ~~to~~ of the statutes, as created by this act, for terms expiring on May 1, 2006.

(c) The members specified in section 15.105 (27) (a) 5. and 8. of the statutes, as created by this act, for terms expiring on May 1, 2007.

(END)

1 **INSERT A:**

This bill requires electric utilities and cooperative associations to remedy any problems associated with their plant or equipment that result in an objectionable flow of current at the premises of a customer or member. An objectionable flow of current is defined as a steady state of current for 5 seconds or more. An electric utility or cooperative association must remedy such problems no later than 10 years after they are discovered. In addition, the bill creates a rebuttable presumption that an objectionable flow of current is the result of the electric utility's or cooperative association's plant or equipment, not the customer's or member's plant or equipment. Also, the bill allows a customer or member who is injured as a result of an electric utility's or cooperative association's failure to remedy such a problem to sue for treble damages.

The bill also creates an electric pollution board (board) that makes grants to reimburse electric utilities and cooperative associations that remedy problems described above. The source of funding for the grants is the electric pollution fund (fund), which is created by the bill. The fund consists of a 0.005 cent per kilowatt hour surcharge that electric utilities and cooperative associations must assess on customer and member bills. The board may also make grants to customers or members, or groups of customers or members, if the board is satisfied that an electric utility or cooperative association refuses or is unable to remedy a problem and another competent person has performed the remedy. In addition, the bill prohibits the board from making any award unless the electric utility, cooperative association, or other person documents to the satisfaction of the board that remedial activities are complete. Also, the bill requires the board to promulgate rules for making the awards, and the rules must include a priority system for making awards based on the severity of the objectionable flow of current.

The board consists of the attorney general, or his or her designee, and 8 other members. Two of the other members are chief executive officers of investor–owned electric utilities, or their designees, one of which is appointed by the speaker of the assembly and the other of which is appointed by the senate leader of the opposite party. The following other members are appointed by the governor with senate confirmation: 1) 2 professors or professors emeritus of electrical engineering, one of which is from the University of Wisconsin System and the other of which is from the Milwaukee School of Engineering; 2) a physician recommended by the Wisconsin State Medical Society; 3) a customer of an investor–owned electric utility; 4) a customer of a municipal electric utility; and 5) a member of a cooperative association recommended by the Wisconsin Federation of Cooperatives. Except for the attorney general, no member of the board may serve more than 2 terms.

2 **INSERT 4–2:**

(c) Any customer or member injured as a result of an electric utility's or cooperative's failure to remedy a problem under par. (a) may bring a cause of action for treble damages.

INSERT 4–5:

The rules shall also include requirements and procedures for making awards to customers or members, or groups of customers or members, of electric utilities or cooperatives that refuse or are unable to perform remedies under sub. (2) (a).

DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU

LRB–3276/1dn
MDK:.....
cjs

Representative Gronemus:

Please note the following about this bill:

1. Does the definition of "objectionable flow of current" work, or should it be more descriptive? As drafted, the bill requires a remedy for "a steady state of current of 5 seconds or more" at the premises of a customer or member. I frankly don't know whether that language is descriptive enough, but it sounds like it should be more specific.

2. I named the board the electrical pollution board and the fund the electrical pollution fund. I didn't use "super fund" because there already is a super fund under federal law that deals with remedying hazardous substance contamination and I thought it would be confusing to have a state program with a similar name that does something different.

3. I believe that the Computer Business Equipment Manufacturers Association has changed its name to the Information Technology Industry Council. If I'm wrong, please let me know. In addition, I will double check the name change and contact you if I'm wrong.

4. This version allows customers and members to apply for funding if the utility or cooperative refuses or is unable to perform the remedy. However, I wasn't sure whether a customer or member who receives funding should be prohibited from going to court for treble damages. As drafted, the bill does *not* include such a prohibition. If you want such a prohibition, please let me know, and I will revise the bill.

5. I'm not sure how you want to handle general program operations of the board or its staffing. As drafted, the board's general program operations are funded from the same GPR appropriation that is used for certain other boards that are attached to DOA. Also, the bill directs DOA to provide staff services to the board. Alternatively, you could use a portion of the electrical pollution fund for the board's general program operations, and you could create position authorizations for the board so that it has its own staff. Please let me know if you want to make these changes.

6. I assumed that you wanted to delete proposed s. 16.956 (5) (PSC reports) from this version of the bill. Is this correct? If not, what rule violations should the PSC be required to report about?

7. The cooperative member is recommended by the Wisconsin Federation of Cooperatives (federation), not designated. This approach is similar to the physician member, who is recommended by the Wisconsin State Medical Society. There's a very strong argument that you can't delegate the appointment power to a private entity such as the federation, because it would be an improper delegation of legislative power. Therefore, the federation is allowed to recommend, not designate.

8. The amount in the schedule for FY 2001–02 is zero, because the utilities and cooperatives have 6 months after the bill goes into effect to start imposing the surcharge. Therefore, I assumed that no money would come into the fund in that fiscal year. As for FY 2002–03, the PSC provided you with data that total kilowatt sales in Wisconsin in 2000 equaled 64,774 million. Assuming the amount stays the same for FY 2002–03, the surcharge collected would be $3,238,700 (which results from multiplying 64,774 million by 0.005 cents). As instructed, I used 85% of that amount and rounded the result up to the nearest hundred dollars (as we do for all appropriations), to arrive at $2,752,900 for FY 2002–03.

Mark D. Kunkel
Legislative Attorney
Phone: (608) 266–0131
E–mail: mark.kunkel@legis.state.wi.us

DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU

LRB–3276/1dn
MDK:cjs:jf

October 11, 2001

Representative Gronemus:

Please note the following about this bill:

1. Does the definition of "objectionable flow of current" work, or should it be more descriptive? As drafted, the bill requires a remedy for "a steady state of current of 5 seconds or more" at the premises of a customer or member. I frankly don't know whether that language is descriptive enough, but it sounds like it should be more specific.

2. I named the board the electrical pollution board and the fund the electrical pollution fund. I didn't use "super fund" because there already is a super fund under federal law that deals with remedying hazardous substance contamination and I thought it would be confusing to have a state program with a similar name that does something different.

3. I believe that the Computer Business Equipment Manufacturers Association has changed its name to the Information Technology Industry Council. If I'm wrong, please let me know. In addition, I will double check the name change and contact you if I'm wrong.

4. This version allows customers and members to apply for funding if the utility or cooperative refuses or is unable to perform the remedy. However, I wasn't sure whether a customer or member who receives funding should be prohibited from going to court for treble damages. As drafted, the bill does *not* include such a prohibition. If you want such a prohibition, please let me know, and I will revise the bill.

5. I'm not sure how you want to handle general program operations of the board or its staffing. As drafted, the board's general program operations are funded from the same GPR appropriation that is used for certain other boards that are attached to DOA. Also, the bill directs DOA to provide staff services to the board. Alternatively, you could use a portion of the electrical pollution fund for the board's general program operations, and you could create position authorizations for the board so that it has its own staff. Please let me know if you want to make these changes.

6. I assumed that you wanted to delete proposed s. 16.956 (5) (PSC reports) from this version of the bill. Is this correct? If not, what rule violations should the PSC be required to report about?

7. The cooperative member is recommended by the Wisconsin Federation of Cooperatives (federation), not designated. This approach is similar to the physician member, who is recommended by the Wisconsin State Medical Society. There's a very strong argument that you can't delegate the appointment power to a private entity such as the federation, because it would be an improper delegation of legislative power. Therefore, the federation is allowed to recommend, not designate.

8. The amount in the schedule for FY 2001–02 is zero, because the utilities and cooperatives have 6 months after the bill goes into effect to start imposing the surcharge. Therefore, I assumed that no money would come into the fund in that fiscal year. As for FY 2002–03, the PSC provided you with data that total kilowatt sales in Wisconsin in 2000 equaled 64,774 million. Assuming the amount stays the same for FY 2002–03, the surcharge collected would be $3,238,700 (which results from multiplying 64,774 million by 0.005 cents). As instructed, I used 85% of that amount and rounded the result up to the nearest hundred dollars (as we do for all appropriations), to arrive at $2,752,900 for FY 2002–03.

Mark D. Kunkel
Legislative Attorney
Phone: (608) 266–0131
E–mail: mark.kunkel@legis.state.wi.us

2001 BILL

AN ACT *to amend* 20.505 (4) (h); and *to create* 15.07 (1) (d), 15.105 (27), 16.956, 20.505 (4) (s), 25.17 (1) (dm) and 25.98 of the statutes; **relating to:** creating an electric pollution board, establishing an electric pollution fund, requiring electric utilities and cooperative associations to remedy certain current-flow problems, imposing a surcharge on electric bills, granting rule-making authority, and making an appropriation.

Analysis by the Legislative Reference Bureau

This bill requires electric utilities and cooperative associations to remedy problems associated with their plant or equipment that result in an objectionable flow of current at the premises of a customer or member. An objectionable flow of current is defined as a steady state of current for five seconds or more. An electric utility or cooperative association must remedy such problems no later than ten years after they are discovered. In addition, the bill creates a rebuttable presumption that an objectionable flow of current is the result of the electric utility's or cooperative association's plant or equipment, not the customer's or member's plant or equipment. Also, the bill allows a customer or member who is injured as a result of an electric utility's or cooperative association's failure to remedy such a problem to sue for treble damages.

The bill also creates an electric pollution board (board) that makes grants to reimburse electric utilities and cooperative associations that remedy problems

described above. The source of funding for the grants is the electric pollution fund (fund), which is created by the bill. The fund consists of a ~~mill~~ 0.05 cent per kilowatt hour surcharge that electric utilities and cooperative associations must assess on customer and member bills. The board may also make grants to customers or members, or groups of customers or members, if the board is satisfied that an electric utility or cooperative association refuses or is unable to remedy a problem and another competent person has performed the remedy. In addition, the bill prohibits the board from making any award unless the electric utility, cooperative association, or other person documents to the satisfaction of the board that remedial activities are complete. Also, the bill requires the board to promulgate rules for making the awards, and the rules must include a priority system for making awards based on the severity of the objectionable flow of current.

The board consists of the attorney general, or his or her designee, and eight other members. Two of the other members are chief executive officers of investor–owned electric utilities, or their designees, one of whom is appointed by the speaker of the assembly and the other of whom is appointed by the senate leader of the opposite party. The following other members are appointed by the governor with senate confirmation: 1) two professors or professors emeritus of electrical engineering, one of whom is from the University of Wisconsin System and the other of whom is from the Milwaukee School of Engineering; 2) a physician recommended by the Wisconsin State Medical Society; 3) a customer of an investor–owned electric utility; 4) a customer of a municipal electric utility; and 5) a member of a cooperative association recommended by the Wisconsin Federation of Cooperatives. Except for the attorney general, no member of the board may serve more than two terms.

For further information see the ***state and local*** fiscal estimate, which will be printed as an appendix to this bill.

The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:

SECTION 1. 15.07 (1) (d) of the statutes is created to read:

15.07 **(1)** (d) Except as provided in s. 15.105 (27) (a) 1. and 2., no member of the electric pollution board may be an officer, director, or employee of an electric public utility or a cooperative association organized under ch. 185 for the purpose of providing electricity to its members only.

SECTION 2. 15.105 (27) of the statutes is created to read:

15.105 **(27)** ELECTRIC POLLUTION BOARD. (a) There is created an electric pollution board that is attached to the department of administration under s. 15.03.

The board shall consist of the attorney general, or his or her designee, and the following members appointed for 4–year terms:

1. One chief executive officer of an investor–owned electric public utility, or his or her designee, appointed by the speaker of the assembly.

2. One chief executive officer of an investor–owned electric public utility, or his or her designee, appointed by the senate leader of the party other than the party of the speaker of the assembly.

3. One professor or professor emeritus of electrical engineering of the University of Wisconsin System.

4. One professor or professor emeritus of electrical engineering of the Milwaukee School of Engineering.

5. One physician recommended by the Wisconsin State Medical Society.

6. One customer of an investor–owned electric public utility.

7. One customer of a municipally owned electric public utility.

8. One member of a cooperative association, organized under ch. 185 for the purpose of providing electricity to its members only and recommended by the Wisconsin Federation of Cooperatives.

(b) The members specified in par. (a) 3. to 8. shall be appointed by the governor with senate confirmation.

(c) No member of the electric pollution board specified in par. (a) 1. to 8. may serve more than 2 terms.

SECTION 3. 16.956 of the statutes is created to read:

16.956 Electric pollution program. (1) DEFINITIONS. In this section:

(a) "Board" means the electric pollution board.

(b) "Electric cooperative" means a cooperative association organized under ch. 185 for the purpose of providing electric service to its members only.

(c) "Electric utility" means a public utility, as defined in s. 196.01 (5), that produces electricity.

(d) "Fund" means the electric pollution fund under s. 25.98.

(e) "Objectionable flow of current" means a steady state of current for 5 seconds or more over the grounding conductor of an electric utility or cooperative

INSERT 4-11

(2) DUTY TO REMEDY. (a) An electric utility or cooperative shall remedy any problems associated with its plant or equipment that result in an objectionable flow of current at the premises of a customer or member no later than one year after discovery of the objectionable flow of current. For purposes of par. (a) and (b), there is a rebuttable presumption that an objectionable flow of current at a customer's or member's premises is the result of problems associated with the electric utility's or cooperative's plant or equipment, not the customer's or member's plant or equipment.

(b) The board shall promulgate rules establishing the standards applicable to remedies under par. (a). In promulgating the rules, the board shall consider the recommendations of the Electric Power Research Institute, the standards of the Institute of Electrical and Electronics Engineers, Inc., and the Information Technology Industry Council.

(c) Any customer or member injured as a result of an electric utility's or cooperative's failure to remedy a problem under par. (a) or (b) may bring a cause of action for treble damages.

(3) AWARDS FROM FUND. (a) The board shall promulgate rules establishing requirements and procedures for the board to make awards from the fund to

reimburse electric utilities and cooperatives for remedies under sub. (2) (a) and (b). The rules shall also include requirements and procedures for making awards to customers or members, or groups of customers or members, of electric utilities or cooperatives that refuse or are unable to perform remedies under sub. (2) (a) or (b). The rules shall include a priority system for making awards based on the severity of the objectionable flow of current. The board may not make an award unless all of the following are satisfied:

1. The remedy is performed by the electric utility or cooperative that provides retail service to the customer or member at whose premises there is an objectionable flow of current or, if the board is satisfied that that electric utility or cooperative has refused or is unable to perform the remedy, by another competent person.

2. The electric utility, cooperative, or other person that performs the remedy documents to the satisfaction of the board that remedial activities for a particular customer or member or group of customers or members have been completed.

(b) The board may contract for assistance in making awards under par. (a), including engineering assistance necessary to prioritize awards.

(4) SURCHARGES. No later than the first day of the 6th month beginning after the effective date of this subsection .... [revisor inserts date], each electric utility and cooperative shall assess a surcharge of 0.05 cent per kilowatt hour on customer and member electric bills and pay the surcharge to the board. The surcharges that are collected by an electric utility or cooperative shall be considered trust funds of the board and not income of the electric utility or cooperative.

(5) STAFF. The department shall provide staff services to the board.

SECTION 4. 20.005 (3) (schedule) of the statutes: at the appropriate place, insert the following amounts for the purposes indicated:

INSERT 5-23

		2001–02	2002–03
20.505 Administration, department of			
(4) ATTACHED DIVISIONS, BOARDS, COUNCILS AND COMMISSIONS			
(s) Electric remediation awards	SEG A	–0–	$27,529,000

SECTION 5. 20.505 (4) (h) of the statutes, as affected by 2001 Wisconsin Act 16, is amended to read:

20.505 **(4)** (h) *Program services.* The amounts in the schedule to carry out the responsibilities of divisions, commissions, and boards attached to the department of administration, other than the board on aging and long–term care, the adolescent pregnancy prevention and pregnancy services board, and the public records board, and to carry out the responsibilities of special and executive committees. All moneys received from fees which are authorized by law or administrative rule to be collected by any division, board, or commission attached to the department, other than the board on aging and long–term care, the adolescent pregnancy prevention and pregnancy services board, the electric pollution board, and the public records board, and all moneys received from fees that are authorized by law or executive order to be collected by any special or executive committee shall be credited to this appropriation account and used to carry out the purposes for which collected.

SECTION 6. 20.505 (4) (s) of the statutes is created to read:

20.505 **(4)** (s) *Electric pollution remediation awards.* From the electric pollution fund, the amounts in the schedule for awards by the electric pollution board under s. 16.956 (3).

SECTION 7. 25.17 (1) (dm) of the statutes is created to read:

25.17 **(1)** (dm) Electric pollution fund (s. 25.98);

SECTION 8. 25.98 of the statutes is created to read:

25.98 Electric pollution fund. There is established a separate nonlapsible trust fund designated as the electric pollution fund, consisting of surcharges collected by electric utilities and cooperative associations and paid to the electric pollution board under s. 16.956 (4).

SECTION 9. Nonstatutory provisions.

(1) INITIAL APPOINTMENTS TO ELECTRIC POLLUTION BOARD. Notwithstanding section 15.105 (27) (a) (intro.) of the statutes, as created by this act, the following initial members of the electric pollution board shall be appointed by the first day of the 3rd month beginning after the effective date of this subsection for the following terms:

(a) The members specified in section 15.105 (27) (a) 1., 3., and 6. of the statutes, as created by this act, for terms expiring on May 1, 2005.

(b) The members specified in section 15.105 (27) (a) 2., 4., and 7. of the statutes, as created by this act, for terms expiring on May 1, 2006.

(c) The members specified in section 15.105 (27) (a) 5. and 8. of the statutes, as created by this act, for terms expiring on May 1, 2007.

(END)

INSERT 1A:

In addition, no later than January 1, 2012, an electric utility or cooperative association must remedy all such problems, except for objectionable flows of current that are discovered in 2011, which must be remedied no later than one year after discovery. An electric utility or cooperative association that fails to comply with a one–year deadline under the bill is subject to a forfeiture of not more than $1,000 for each day over the deadline. An electric utility that fails to comply with the January 1, 2012, deadline is subject to a forfeiture of not more than $500,000.

INSERT 4–11:

(b) 1. Notwithstanding par. (a), and except as provided in subd. 2., no later than January 1, 2012, each electric utility and cooperative shall remedy all problems associated with their plant or equipment that result in an objectionable flow of current at the premises of any of the electric utility's or cooperative's customers or members.

2. If an objectionable flow of current is discovered at a customer's or member's premises in 2011, the electric utility or cooperative shall remedy all problems associated with ~~their~~ its plant and equipment that result in that objectionable flow of current no later than one year after it is discovered.

INSERT 5–23:

(6) PENALTIES. (a) An electric utility or cooperative that violates sub. (2) (a) or (b) 2. may be required to forfeit not more than $1,000 for each violation. Each day of continued violation constitutes a separate violation.

(b) An electric utility or cooperative that violates sub. (2) (b) 1. may be required to forfeit not more than $500,000.

DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU

LRB–3276/2dn
MDK:.....

Representative Gronemus:

This version is identical to the previous version, except for the following:

1. The definition of "objectionable flow of current" is revised.

2. The surcharge and amount in the schedule are corrected.

3. An electric utility or cooperative association must remedy problems within one year after discovery, and must remedy all problems by January 1, 2012, except for problems discovered in 2011, which must be remedied within one year after discovery. I added the exception for problems discovered in 2011 in order to give electric utilities and cooperative associations more time for a remedy. Otherwise, an electric utility or cooperative association that discovered a problem in December 2011, for example, would have only one month or less to perform the remedy.

4. This version includes penalties in proposed s. 16.956 (6).

Mark D. Kunkel
Legislative Attorney
Phone: (608) 266–0131
E–mail: mark.kunkel@legis.state.wi.us

DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU

LRB–3276/2dn
MDK:kmg:kjf

October 23, 2001

Representative Gronemus:

This version is identical to the previous version, except for the following:

1. The definition of "objectionable flow of current" is revised.

2. The surcharge and amount in the schedule are corrected.

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4. This version includes penalties in proposed s. 16.956 (6).

Mark D. Kunkel
Legislative Attorney
Phone: (608) 266–0131
E–mail: mark.kunkel@legis.state.wi.us

LRB–3276/2 (3)
MDK:kg&cs:kjf

Tuesday 11/6 NOON

D-NOTE

RM has been run

2001 BILL

Gen. Cat.

AN ACT ***to amend*** 20.505 (4) (h); and ***to create*** 15.07 (1) (d), 15.105 (27), 16.956, 20.505 (4) (s), 25.17 (1) (dm) and 25.98 of the statutes; **relating to:** creating an electric pollution board, establishing an electric pollution fund, requiring electric utilities and cooperative associations to remedy certain current–flow problems, imposing a surcharge on electric bills, granting rule–making authority, making an appropriation, and providing penalties.

Analysis by the Legislative Reference Bureau

This bill requires electric utilities and cooperative associations to remedy problems associated with their plant or equipment that result in an objectionable flow of current at the premises of a customer or member. An objectionable flow of current is defined as a steady state of current for five seconds or more over the grounding conductor of an electric utility or cooperative association. An electric utility or cooperative association must remedy such a problem no later than one year after it is discovered. In addition, no later than January 1, 2012, an electric utility or cooperative association must remedy all such problems, except for objectionable flows of current that are discovered in 2011, which must be remedied no later than one year after discovery. An electric utility or cooperative association that fails to comply with a one–year deadline under the bill is subject to a forfeiture of not more than $1,000 for each day over the deadline. An electric utility that fails to comply with the January 1, 2012, deadline is subject to a forfeiture of not more than $500,000.

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The bill also creates a rebuttable presumption that an objectionable flow of current is the result of the electric utility's or cooperative association's plant or equipment, not the customer's or member's plant or equipment. Also, the bill allows a customer or member who is injured as a result of an electric utility's or cooperative association's failure to remedy such a problem to sue for treble damages.

The bill also creates an electric pollution board (board) that makes grants to reimburse electric utilities and cooperative associations that remedy problems described above. The source of funding for the grants is the electric pollution fund (fund), which is created by the bill. The fund consists of a ~~0.05~~ cent per kilowatt hour surcharge that electric utilities and cooperative associations must assess on customer and member bills. The board may also make grants to customers or members, or groups of customers or members, if the board is satisfied that an electric utility or cooperative association refuses or is unable to remedy a problem and another competent person has performed the remedy. In addition, the bill prohibits the board from making any award unless the electric utility, cooperative association, or other person documents to the satisfaction of the board that remedial activities are complete. Also, the bill requires the board to promulgate rules for making the awards, and the rules must include a priority system for making awards based on the severity of the objectionable flow of current.

The board consists of the attorney general, or his or her designee, and eight other members. Two of the other members are chief executive officers of investor–owned electric utilities, or their designees, one of whom is appointed by the speaker of the assembly and the other of whom is appointed by the senate leader of the opposite party. The following other members are appointed by the governor with senate confirmation: 1) two professors or professors emeritus of electrical engineering, one of whom is from the University of Wisconsin System and the other of whom is from the Milwaukee School of Engineering; 2) a physician recommended by the Wisconsin State Medical Society; 3) a customer of an investor–owned electric utility; 4) a customer of a municipal electric utility; and 5) a member of a cooperative association recommended by the Wisconsin Federation of Cooperatives. Except for the attorney general, no member of the board may serve more than two terms.

For further information see the ***state and local*** fiscal estimate, which will be printed as an appendix to this bill.

The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:

SECTION 1. 15.07 (1) (d) of the statutes is created to read:

15.07 **(1)** (d) Except as provided in s. 15.105 (27) (a) 1. and 2., no member of the electric pollution board may be an officer, director, or employee of an electric public

utility or a cooperative association organized under ch. 185 for the purpose of providing electricity to its members only.

SECTION 2. 15.105 (27) of the statutes is created to read:

15.105 **(27)** ELECTRIC POLLUTION BOARD. (a) There is created an electric pollution board that is attached to the department of administration under s. 15.03. The board shall consist of the attorney general, or his or her designee, and the following members appointed for 4–year terms:

1. One chief executive officer of an investor–owned electric public utility, or his or her designee, appointed by the speaker of the assembly.

2. One chief executive officer of an investor–owned electric public utility, or his or her designee, appointed by the senate leader of the party other than the party of the speaker of the assembly.

3. One professor or professor emeritus of electrical engineering of the University of Wisconsin System.

4. One professor or professor emeritus of electrical engineering of the Milwaukee School of Engineering.

5. One physician recommended by the Wisconsin State Medical Society.

6. One customer of an investor–owned electric public utility.

7. One customer of a municipally owned electric public utility.

8. One member of a cooperative association, organized under ch. 185 for the purpose of providing electricity to its members only and recommended by the Wisconsin Federation of Cooperatives.

(b) The members specified in par. (a) 3. to 8. shall be appointed by the governor with senate confirmation.

(c) No member of the electric pollution board specified in par. (a) 1. to 8. may serve more than 2 terms.

SECTION 3. 16.956 of the statutes is created to read:

16.956 Electric pollution program. (1) DEFINITIONS. In this section:

(a) "Board" means the electric pollution board.

(b) "Electric cooperative" means a cooperative association organized under ch. 185 for the purpose of providing electric service to its members only.

(c) "Electric utility" means a public utility, as defined in s. 196.01 (5), that produces electricity.

(d) "Fund" means the electric pollution fund under s. 25.98.

(e) "Objectionable flow of current" means a steady state of current for 5 seconds or more over the grounding conductor of an electric utility or cooperative.

(2) DUTY TO REMEDY. (a) An electric utility or cooperative shall remedy any problems associated with its plant or equipment that result in an objectionable flow of current at the premises of a customer or member no later than one year after discovery of the objectionable flow of current.

(b) 1. Notwithstanding par. (a), and except as provided in subd. 2., no later than January 1, 2012, each electric utility and cooperative shall remedy all problems associated with their plant or equipment that result in an objectionable flow of current at the premises of any of the electric utility's or cooperative's customers or members.

2. If an objectionable flow of current is discovered at a customer's or member's premises in 2011, the electric utility or cooperative shall remedy all problems associated with its plant and equipment that result in that objectionable flow of current no later than one year after it is discovered.

(c) For purposes of pars. (a) and (b), there is a rebuttable presumption that an objectionable flow of current at a customer's or member's premises is the result of problems associated with the electric utility's or cooperative's plant or equipment, not the customer's or member's plant or equipment.

(d) The board shall promulgate rules establishing the standards applicable to remedies under pars. (a) and (b). In promulgating the rules, the board shall consider the recommendations of the Electric Power Research Institute, the standards of the Institute of Electrical and Electronics Engineers, Inc., and the Information Technology Industry Council.

(e) Any customer or member injured as a result of an electric utility's or cooperative's failure to remedy a problem under par. (a) or (b) may bring a cause of action for treble damages.

(3) AWARDS FROM FUND. (a) The board shall promulgate rules establishing requirements and procedures for the board to make awards from the fund to reimburse electric utilities and cooperatives for remedies under sub. (2) (a) and (b). The rules shall also include requirements and procedures for making awards to customers or members, or groups of customers or members, of electric utilities or cooperatives that refuse or are unable to perform remedies under sub. (2) (a) or (b). The rules shall include a priority system for making awards based on the severity of the objectionable flow of current. The board may not make an award unless all of the following are satisfied:

1. The remedy is performed by the electric utility or cooperative that provides retail service to the customer or member at whose premises there is an objectionable flow of current or, if the board is satisfied that that electric utility or cooperative has refused or is unable to perform the remedy, by another competent person.

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2. The electric utility, cooperative, or other person that performs the remedy documents to the satisfaction of the board that remedial activities for a particular customer or member or group of customers or members have been completed.

(b) The board may contract for assistance in making awards under par. (a), including engineering assistance necessary to prioritize awards.

(4) SURCHARGES. No later than the first day of the 6th month beginning after the effective date of this subsection .... [revisor inserts date], each electric utility and cooperative shall assess a surcharge of ~~1.05~~ cent per kilowatt hour on customer and member electric bills and pay the surcharge to the board. The surcharges that are collected by an electric utility or cooperative shall be considered trust funds of the board and not income of the electric utility or cooperative.

(5) STAFF. The department shall provide staff services to the board.

(6) PENALTIES. (a) An electric utility or cooperative that violates sub. (2) (a) or (b) 2. may be required to forfeit not more than $1,000 for each violation. Each day of continued violation constitutes a separate violation.

(b) An electric utility or cooperative that violates sub. (2) (b) 1. may be required to forfeit not more than $500,000.

SECTION 4. 20.005 (3) (schedule) of the statutes: at the appropriate place, insert the following amounts for the purposes indicated:

			2001–02	**2002–03**
20.505 Administration, department of				
(4) ATTACHED DIVISIONS AND OTHER BODIES				
(s) Electric pollution remediation awards	SEG	A	–0–	27,529,000

SECTION 5. 20.505 (4) (h) of the statutes, as affected by 2001 Wisconsin Act 16, is amended to read:

20.505 **(4)** (h) *Program services.* The amounts in the schedule to carry out the responsibilities of divisions, commissions, and boards attached to the department of administration, other than the board on aging and long–term care, the adolescent pregnancy prevention and pregnancy services board, and the public records board, and to carry out the responsibilities of special and executive committees. All moneys received from fees which are authorized by law or administrative rule to be collected by any division, board, or commission attached to the department, other than the board on aging and long–term care, the adolescent pregnancy prevention and pregnancy services board, the electric pollution board, and the public records board, and all moneys received from fees that are authorized by law or executive order to be collected by any special or executive committee shall be credited to this appropriation account and used to carry out the purposes for which collected.

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(b) The members specified in section 15.105 (27) (a) 2., 4., and 7. of the statutes, as created by this act, for terms expiring on May 1, 2006.

(c) The members specified in section 15.105 (27) (a) 5. and 8. of the statutes, as created by this act, for terms expiring on May 1, 2007.

(END)

DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU

LRB–3276/3dn
MDK:kg

Representative Gronemus:

This version is identical to the previous version, except that, to eliminate confusion, this version refers to "one–twentieth of a cent", rather than 0.05 cent, with respect to the surcharge.

Mark D. Kunkel
Legislative Attorney
Phone: (608) 266–0131
E–mail: mark.kunkel@legis.state.wi.us

DRAFTER'S NOTE
FROM THE
LEGISLATIVE REFERENCE BUREAU

LRB–3276/3dn
MDK:kg:jf

November 6, 2001

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Mark D. Kunkel
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E–mail: mark.kunkel@legis.state.wi.us

State of Wisconsin

LEGISLATIVE REFERENCE BUREAU

100 NORTH HAMILTON STREET
5TH FLOOR
MADISON, WI 53701-2037

STEPHEN R. MILLER
CHIEF

LEGAL SECTION: (608) 266-3561
LEGAL FAX: (608) 264-6948

November 6, 2001

MEMORANDUM

To: Representative Gronemus

From: Mark D. Kunkel, Legislative Attorney

Re: LRB-3276/3 Stray voltage remedies

The attached draft was prepared at your request. Please review it carefully to ensure that it is accurate and satisfies your intent. If it does and you would like it jacketed for introduction, please indicate below for which house you would like the draft jacketed and return this memorandum to our office. If you have any questions about jacketing, please call our program assistants at 266-3561. Please allow one day for jacketing.

____ JACKET FOR ASSEMBLY ____ JACKET FOR SENATE

If you have any questions concerning the attached draft, or would like to have it redrafted, please contact me at (608) 266-0131 or at the address indicated at the top of this memorandum.

If the last paragraph of the analysis states that a fiscal estimate will be prepared, the LRB will request that it be prepared after the draft is introduced. You may obtain a fiscal estimate on the attached draft before it is introduced by calling our program assistants at 266-3561. Please note that if you have previously requested that a fiscal estimate be prepared on an earlier version of this draft, you will need to call our program assistants in order to obtain a fiscal estimate on this version before it is introduced.

Please call our program assistants at 266-3561 if you have any questions regarding this memorandum.